

# PULP & PAPER

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North America's Wood Pulp, Paper, Paperboard  
and Cellulose Industries

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## "The Cellulose Age"

### EDITORIALS

#### Even Purer Than Drifted Snow—

Many years of research and the expenditure of many thousands of dollars have gone into the effort to improve the standards of paper used for food packaging.

On the basis of actual tests at producing mills, there should no longer exist any questions with respect to the sanitary qualities from a public health standpoint of paper used in food packaging.

Widening public appreciation of the dangers of contamination from carelessly washed dishes and glasses has had a lot to do with the trend towards single service paper cups, plates, containers, and other items. So far, most of the sales promotion has centered around the assurance paper gives that no one can possibly have used the vessel before. Now, studies conducted over several years and released by the American Paper and Pulp Association reveal that paper as a material is remarkably free from germs. The papermaking process itself destroys harmful bacteria.

At the request of the association, the Institute of Paper Chemistry went into 28 mills all over the country and made bacteriological tests of 2500 samples of 35 types of paper and board used in food packaging and service. Not a single sample showed the presence of disease-producing bacteria. In an experimental run, a heavy suspension of *Escherichia coli*, a bacterium found in digestive tract of humans and other warm blooded animals, was sprayed onto a wet sheet ahead of paper machine dryers. After the paper had passed over the dryers, analyses showed that all of the coliform bacteria had been destroyed.

A broader realization of the unusual cleanliness of the paper products surely ought to stimulate development of wider markets for this industry.

#### No Crystal Ball

"No Crystal Ball" is the title of an interesting booklet issued to mill employees of the West Virginia Pulp and Paper Company when adjustments in the market became visible this year.

"We wanted to tell our mill people, insofar as we are able, what happened in the industry and what might be likely to happen," said William D. Staples, public relations director. "But, as the title implies, we admitted no ownership of a crystal ball."

Nevertheless, the booklet is a clear and concise statement of facts as they exist today for the company and the industry. And while West Virginia could not predict the future it could point with proper pride to the riding out of other storms. In the bottom of the big depression, West Virginia had jobs for 80% of the number employed in 1929. And, says the booklet:

"The company is strong and, we believe, still growing. Over the past five years—against a lot of objections by people who wanted us to hand out the money in other ways—we've spent nearly \$30,000,000 rehabilitating and modernizing our plant and equipment—your tools—getting into shape to meet the competition we knew was coming. We plan to spend more."

#### Why Not Permanent Signs in Mills?

We've recently visited another "open house" of a pulp and paper mill and observed very instructive and interesting signs which were placed near principal installations of equipment.

The thought occurs: Why shouldn't these signs be permanent fixtures?

Every day isn't "open house" at a mill, but virtually every day there are visitors. They may be distinguished visitors from abroad or local people who should have a better understanding of their industry. A modest, neat sign, in the proper place, which identifies the equipment, tells what it does, and perhaps gives its production capacity or other unique features, would make a good impression on these daily visitors.

*"Humanity needs two things—food for the body and food for the mind. We cannot have food for the mind if our supplies of paper are inadequate."*—Sir Herbert Gepp, in recent interview with this magazine.

#### A Lasting Industry Achievement

The Institute of Paper Chemistry, the industry-sponsored and financed research and educational establishment at Appleton, Wis., has grown phenomenally in 20 years. Its record of growth is one that this industry can take great pride in. And it is a record that is paying off in "compound interest" as institute alumni rise in the ranks of top industry management, as well as multiply in numbers. Here are some facts worth knowing:

The staff increased from three in 1929 to over 200 in 1949; the annual budget in 1949 was \$850,000 as contrasted to \$40,000 in 1929; during the first year of its existence the institute occupied rented quarters in a gymnasium, but today its buildings and equipment could not be replaced for \$2,000,000; the present student body numbers 44, as compared with three students at the opening of the institute. During 20 years of activity, the institute through Lawrence College, has granted 132 master's degrees and 100 Ph. D. degrees.

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In this corner each month, PULP & PAPER publishes the "tallest tales" it can gather from pulp and paper industry men. As everyone knows there just aren't any better story-tellers. Try your hand at it—send us a story.

We pay \$5 for these stories; and all you need to do is outline the story in a letter to the Editor of PULP & PAPER, care of any of the addresses given in our "masthead" at the top of the previous page.

You may like to look up previous stories for an inspiration. The one in September (page 42), from a mill manager in Mexico, told about a mule-driven paper machine. The one in October (page 26), from a superintendent in Tasmania, told of the strange results when a mill used barnyard fertilizer for a furnish. The November story (page 30), was about a hairy Scotch beaterman whose whiskers caught in the beater bars, with the result that the mill ran door mats for a week!

Maybe these stories will inspire you to try your hand.

How about a tall story from you?

For this month's story we are indebted to a well known raconteur of Camas on the Columbia where he is the sulfite superintendent and also has charge of the sulfite and kraft bleach plants. To Jack V. Savage (right) we are very happy to send our honorarium of \$5 U. S. Here's his story:



During the short span of 22 years that I have been connected with the pulp industry, it has been my privilege to witness many improvements in the process and to associate with many men of rare ingenuity.

An example worthy of mention occurred in the early days of the rayon pulp industry. We were fortunate enough to have one of those unusual superintendents who had the faculty for making everyone want to work as though the plant were his own. When the crew really got "on the beam" and met all the specifications day after day, it didn't take long for them to become restless for new worlds to conquer.

The first improvement was devised by one of the cook's helpers who had spent his early working life in an eastern textile mill. His invention, bolted into the blow pipe of the digester, made it possible to blow finished rayon cloth directly from the digester.

This put the blow pit man out of work.

He was a resourceful fellow who had been a cowboy in New Mexico before joining the pulp industry. He had discovered the rubbery qualities of a bush which grew in his native state (later discovered by scientists and identified as

Guayule). Through his original suggestion, plus some hard study and close control it was developed to a point where we were able to place an evenly spread layer of chips two inches thick made from Guayule bushes every 32 inches in the digester, (the rest being specially treated hemlock) and then by careful setting, and some improvement on the installation in the blow pipe, it was possible to blow ladies' bloomers directly from the digester complete with elastic band at the top.

We were just in the process of improv-

## 3 NEW MACHINES ORDERED One for Pacific Coast

A new 84 inch Beloit Fourdrinier machine with a 12 ft. 100 lbs. pressure Yankee dryer has been ordered by Pacific Coast Paper Mills of Washington, Inc., Bellingham, Wash.

F. J. Herb, president and general manager, announcing the new addition to PULP & PAPER, said it will make dry crepe tissue, such as facial and toilet. The company, changed its No. 1 from cylinder to Fourdrinier machine a few years ago,

ing our color and bloomer size control when our business disappeared. The government started buying up all of the Guayule and the ladies seemed to have stopped wearing garments of this type.

The process is no doubt being kept in the files of this mill and when styles make their cycle again they will be ready to fill the counters and store windows all over America.

### About Those New Mills

There have been two press announcements of recent date to the effect that construction of new pulp and paper mills in Canada and Colorado would be under way soon—this fall, in one case, and by next spring, in the other. These construction dates are, perhaps, within the realm of possibility. But in both cases, the dispatches failed to point out that financing of the projects was still an uncompleted necessary preliminary.

and last year rebuilt its No. 2 cylinder with a new Black-Clawson Fourdrinier, Beloit Yankee, Valley headbox and added its second Dilts Hydrapulper.

A new stock treating system and other auxiliary equipment will be added for the new No. 3. It is hoped delivery will be made in the spring.

Howard S. Wright Co. of Seattle, is building a new two-story concrete building 80 by 140 ft.

## Another for Mobile Mill

Hollingsworth & Whitney Co. is going forward in Mobile, Ala., on its expansion toward a 50% increase in production, PULP & PAPER was told in Boston this month by James L. Madden (right), president, and the project should be complete late in 1950.

Improvements are being made from the woodyard right on through paper production, Mr. Madden said, including a new Fourdrinier paper machine.

Thorough engineering preceded the ordering and installation of equipment for the improvement of water supply, doubling the six-stage bleach plant, and other phases including an additional recovery unit.

The improvements are for the purpose of widening production of quality bleached papers from kraft, a development in which H & W has pioneered.



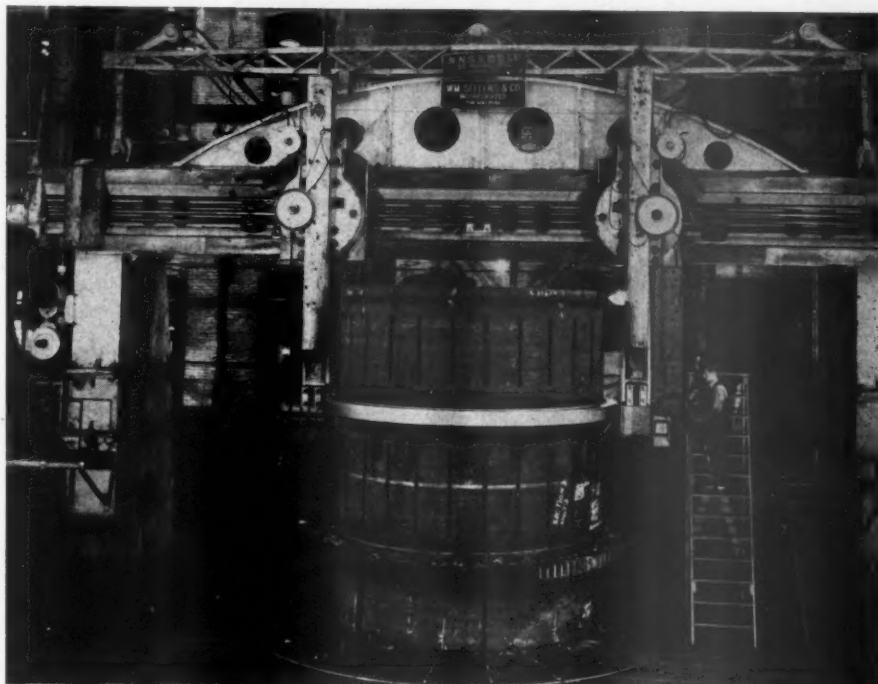
## Third to Go in Virginia

J. L. Camp, Jr., president of Camp Manufacturing Co., has announced completion of plans for the installation of a new high-speed 226-inch Fourdrinier paper machine by Beloit Iron Works for lightweight unbleached kraft papers at the Franklin, Va., operation. It is scheduled for October, 1950.

It will complement the present 212-inch machine to be run on heavyweight kraft paper and the 80-inch machine to be run on kraft specialties, now in operation, and will provide an outlet for surplus pulp producing capacity now available at the Franklin mill.



# MANY IMPROVEMENTS ARE MADE Southern Mills Busy



TOP—A NEW DRUM BARKER, shown in boring mill of Newport News Shipbuilding & Drydock Co., Newport News, Va., and now installed in a large Southern pulp and paper mill where, according to management, it is performing very satisfactorily.

Below—A mobile magnetic separator at Union Bag & Paper Corp., Savannah, Ga., which picks up metal from wood chips at the rate of 140 lbs. per week. It is made by Dings Company, Milwaukee.

The mills of the Southeast coast, a **PULP & PAPER** editor found on a recent trip from Virginia to Florida, have recovered almost fully from the midsummer recession when a number of operations suffered temporary shutdowns and the average production in the south was around 40% of potential capacity. But in recent weeks things were looking up all along the Southern pine and hardwood coast, and the average was something more than 85% of potential capacity.

Not all the developments on the Southeast coast are ripe for publication at this time, but many things are stirring. One well known organization was making a survey of possible new mill sites, some of which may be in the coastal area although all the South was being recognized as a possibility. Some operators were planning further "legs" on improvement programs begun after the war—but did not care to comment in detail for publication at this moment.

This is understandable and well put by the statement of one mill manager to this magazine. "Engineering and estimating (on the next step in improvements) are completed . . . but have been held in abeyance. If we do decide to proceed, it will not be difficult to get started."

But there were other improvements which could be talked about now and which certainly indicate that the Southern trend is onward. Notable were the improvements at the Jacksonville mill of National Container Corp., on the machine, in refining and washing and chemical and recovery phases. These improvements may be said to be still in the movement stage. In fact, with the great changes taking place in the world pulp and paper market, no mill in the South—or elsewhere—is likely to be standing still in the matter of new equipment and revised engineering.

## Fernandina Improvements

Container Corp. of America's comparatively new mill at Fernandina, Fla., expects to be completed as to all original plans by January or February, including the final touch of a new office building which will match in architecture the mill building itself. The latter is one of the finest examples of factory design and construction in the country. And Rayonier, Inc., an older resident of Fernandina, has been making improvements in the realm of highly purified wood cellulose almost since it began operations in December of 1939.

Further up the coast, at Brunswick, the Brunswick Pulp & Paper Co. (making pulp for both Scott and Mead) has largely finished its improvement program which was reported in detail in **PULP & PAPER** (page 78, June 1948 issue). This began



GEN. LUCIUS D. CLAY, former United States Military Governor of Germany, who has entered civilian life as the new President of Ecusta Paper Corp., the famous flax pulp cigaret paper and fine flax printing and writing paper mill at Pisgah Forest, N. C. As we announced last month, General Clay succeeded Harry H. Straus, who is now Chairman of the Board of this unusual company, whose process was brought from France by Mr. Straus and others associated with him.

operations in 1938 and not only has kept abreast of industry developments in its sphere but has pioneered a few of them, chiefly under the active direction of E. J. Gaynor 3rd, vice-president and general manager, and Gordon Singletary, superintendent. The wood supply has been brought closer to the mill by a new spur track, and there is a chain-belt conveyor to the new chipper housing where a 10-blade Carthage has replaced two old 4-blade chippers. There are now three Murray barking drums installed parallel. The new 8x140 lime kiln is now in operation, and there are new additions to the chip bins. Additional Blaw-Knox digesters are up now, and the C-E recovery unit is completed. Other facets of the long-range plan included a new artesian well of 6,000,000 gallon capacity; six-stage bleach plant; Stebbins brown stock chests; De Zurik stock regulation. Of unusual interest have been rubber acid water lines and stainless steel tubing by Esco, and a press-flakt dryer. Greater yield per unit of wood has been the goal of this mill which employs both pine and hardwoods, the latter running about 32%.

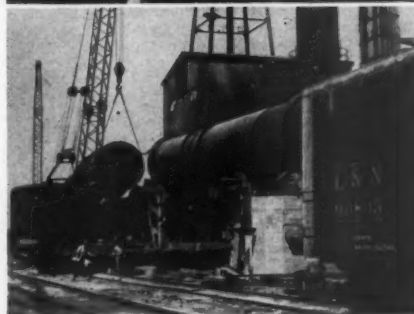
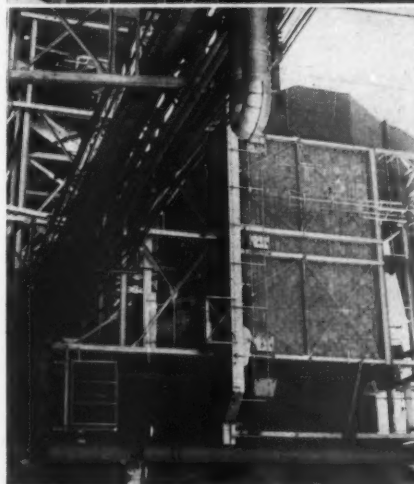
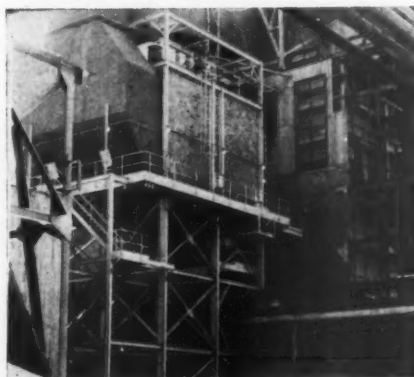
#### Largest Swenson Evaporators

The giant mill of Union Bag & Paper Co., Savannah, Ga., is always looking to new low costs and higher production. A new set of Swenson evaporators here, said to be the largest of their kind in the industry, are not yet quite in operation. But one interesting and comparatively new development at Union is the extraction of metals from the pine chips by magnetic separators. Union is using magnetic separators which operate in mobile fashion over the chip conveyor and pick up metal from the chips. These electric magnets pick up an average of 140 pounds of metal per week and are claimed to remove at least 90% of the

metal in the chips. The bulk of this metal waste is comprised of metal turpentine cups, nails, and fence wire. Their removal saves real time and money in preventing damage to wires and other equipment. Other improvements at Union include a new precipitator, and new electric crane installed in the board storage building of the box plant, and new motors for the recently installed pulp refiners.

Particular interest is attaching to the North Charleston, S. C., mill of West Virginia Pulp & Paper Co. these days. The new Koppers precipitator is fully installed and in operation; and probably ready to operate by the time this reaches print will be the fourth lime kiln, this one being a 10 by 200 job engineered and built by F. L. Smidth & Co. Its length is of interest in connection with this Southern

TWO UPPER PICTURES ARE views of new Koppers Precipitator recently started up at Charleston, S. C., mill of West Virginia Pulp & Paper Co. In upper one, at far right, is framework of new third Babcock & Wilcox recovery boiler, now under construction. Below is part of the new type 200 by 10-ft. rotary lime kiln being supplied by F. L. Smidth & Co.

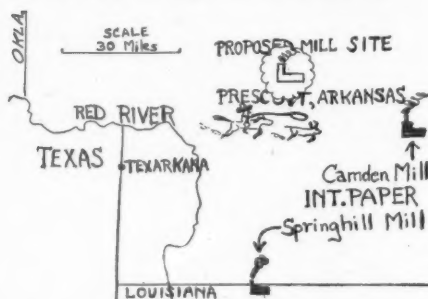


kiln trends. This one is not the longest in the South where they range up to 300 feet, but it is one of the first in the industry of the Smidth type.

Almost completed at North Charleston is the third of their Babcock & Wilcox recovery units. Chief among improvements in pulp preparation are new Impeco washers.

North Carolina Pulp Co., Plymouth, N. C., recently installed a new type barker built by Newport News Shipbuilding and Drydock Co. which for many years has been active in the industry. But other improvements here included rebuilding of its No. 2 machine to make it a twin to "The Kraftsman" which was built by Beloit and produces 550 tons of liner board. Beloit also rebuilt No. 2. The improvements in stock preparation at the Plymouth mill, operated by Kieckhefer Container Corp., are notable. These include ten Sutherland refiners with many features including automatic control by Mason-Neilan. Construction is completed on a C-E recovery unit, Cottrell precipitator, and a second Allis-Chalmers 130-foot lime kiln.

## NEW MILL To Be Built In Arkansas



Important lumber companies owning forest lands in Southwest Arkansas and contiguous territory are planning to build a new \$20,000,000 kraft pulp mill at Prescott, Arkansas, according to advices received from PULP & PAPER'S Southern associate editor on tour at Houston, Tex., as this issue went to press.

Lumber company executives of the Southwest are now making a tour of the large established Southern pulp mills to study their general organization and production features. Presumably, before deciding on details about the new mill, its size and possibly its processes and products, these lumbermen want to gain some first hand information from existing successful operations.

It has long been anticipated that another major mill would be built in the Arkansas-East Texas region.

Prescott is in Southwestern Arkansas near the Red River Valley and Texas. It is about 60 miles directly north of the Springhill, La., mill of International Paper Co. and about 40 miles west-northwest of their Camden, Ark., plant.





Today pulp and paper has got to be clean in order to sell.

Jonsson Screens get the dirt, knots, bark and shives before they have a chance to get broken up into the specks that are so hard to remove later on.

For knotting there's nothing like the Jonsson Screen. Ask us to prove it.



#### JUST THE TICKET FOR DEINKED STOCKS

Jonsson Screens have the capacity and the ability to whisk out wet strength paper, cellophane, paper clips, rubber bands, string and what have you. There's hardly any loss of good fibres in the rejects. The deinking system never gets clogged up or slowed down.

2000 Jonsson Screens are now on the job all over the world. They *must* be good! Are you making the most of them?

**BIRD MACHINE COMPANY**

South Walpole, Massachusetts

# OXFORD MODERNIZES

## Many New Additions at Rumford

In this, its 50th year, the Oxford Paper Co. is completing final phases of a long-term modernization program in its mill at Rumford, Me.

The Rumford operations have never been less than modern for any given period in the history of the industry, but these newest improvements actually have set Oxford ahead by many years. Long the largest of their kind at one mill, the Rumford operations have for several decades been vital to the progress and growth of the U. S. printing and publication industries.

Although the company is entering its 50th year, the developments which led to it began about 67 years before—on the day, to be exact, when the late Hugh J. Chisholm, Sr., got off the Grand Trunk Railroad at Bethel and took a 23-mile drive by horse and sleigh. The ride brought him to a spot where the Androscoggin had cut its deepest gorge, and where the Ellis and Swift rivers joined the overflow from the Rangeley system at villages called Hanover and Mexico, reaching climactic force in Pennacook Falls. The "Island," where Rumford was yet to be, was not much more than a rock and mud patch on the river. At the head of the falls a wooden flume diverted a small amount of water to operate a carding and clothing mill.

Mr. Chisholm recognized the opportunities afforded by the potential water

power and began plans for its development and the acquisition of property and flowage rights. In 1890 the Rumford Falls Power Co., now a subsidiary of Oxford Paper, was organized. The first hydro-electric plant (1893) consisted of two units developing a total of 128 hp under a 55-foot head and supplying 125-cycle current. Today there is a total capacity of 51,999 hp of both hydro-electrical and hydro-mechanical power, and the Oxford Paper Co. and its subsidiary are practically inter-dependent. The power company delivers over 90% of its power to Oxford, the remainder to the local utility which serves the community and surrounding territory.

As Mr. Chisholm had foreseen, a paper mill was attracted to this new site, a mill built by the Rumford Falls Paper Company, which afterward became the property of the Continental Paper and Bag Co. At a later date this property was taken over by the International Paper Co. of which Mr. Chisholm was one of the co-founders, its president and from 1908 until his death in 1912, chairman of the board. This mill is now known as "the Island Division" of Oxford and manufactures pulp for the paper mill. In 1899, the Oxford Paper Company was founded and in less than two years had started up with its own mill in Rumford. Over the years Oxford developed into a book paper mill second to none in the U. S. in

size.

Its products began to include book, text and writing papers. Its coated papers became standard for some of the largest magazines in the world. Even before the modernization phases, the mill was making 150,000 pounds of coated paper every 24 hours, and over 800,000 pounds in other grades. Its soda pulp production was 370,000 pounds and its sulfite 500,000. During its modernization program, Oxford has speeded up some of its machines, added one new machine, and widely improved its pulping and bleaching operations to keep up with the demand in both quantity and quality for its papers. And to the 600-ton figure that stands today as daily capacity at Rumford must be added the daily 250,000 pounds at Oxford Miami Paper Co. at West Carrollton, O.

On the site where the founding Mr. Chisholm stood that day in 1882 is a town that, in the 350-year history of Maine, is a mere stripling. But it is certainly no moribund mill town. Right today, on land donated by the company, are rising more than 60 homes to help alleviate the housing shortage which hit Rumford during and after World War II. It is not the first housing development in the town. An older section of the community, Strathglass Park, is a housing project built many years ago by Mr. Chisholm and recently these fine old



THIS UNUSUAL AIR VIEW shows the interesting relationship between two towns, two rivers, and two mills in the State of Maine. In the center is the paper mill of Oxford Paper Co. and to the right is the old International mill which is called the "Island Division" of Oxford and manufactures pulp. In the foreground is the town of Rumford and beyond against the hill is Mexico, Maine. The curving river is the famed Androscoggin and at the extreme left may be seen the mouth of Swift River.



**50 YEARS OF CLEAR PERSPECTIVE**

**1899**

**1949**

**... is the history of Oxford Paper Company**

A constant striving for the best available in process equipment and technique has resulted in expansion and progress toward the enviable reputation Oxford now enjoys in the manufacture of fine book papers.

We salute our good friends and extend our wishes for a limitless future.

\* \* \*

*Rice Barton Corporation*  
WORCESTER MASSACHUSETTS



RAY SMYTHE, West Coast Representative, 501 Park Building, Portland 5, Oregon

December 1949

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HUGH J. CHISHOLM, President of the Oxford Paper Co.

houses were sold at low figures to the occupants. Built in the solid style of the early 1900s, these houses and grounds still combine to create one of the most attractive areas in a wholly attractive Maine town. But there are plenty of more recent developments. Rumford's Community Hospital, for example, is Class A and noted for the enthusiasm of its women's auxiliary. The Harris Hotel, named for a man who once managed the mill, is one of the finest hostleries in the Northeast.

Headquarters of Oxford are naturally in Manhattan, center of the country's printing and publishing industry. But Oxford sales are not bound by this great market alone. Its sales organization spreads across the U. S. and reaches abroad. At 230 Park Ave., are Hugh J. Chisholm, son of the founder, president; Rex W. Hovey, executive vice president; H. H. Holden, vice president in charge of sales; D. Appleton, vice president in charge of manufacturing; T. E. Bruning, treasurer, and William H. Chisholm, assistant to the president and third generation in the company. In the Chicago office O. S. Barrie is in charge of Western sales. The personnel on Park Avenue is noted for its close relationship to activities at Rumford, where T. F. Spear is general manager, as well as the Ohio mill where Phil Hovey is in charge.

The company has resources of timber lands in both Maine and Canada. It practices careful selected cutting and, significantly, is an active member of the Northeast Pulpwood Research Center. In 1947 it acquired the Nashwaak Pulp and Paper Co., Ltd., in which it had previously held a majority interest, which owns and controls extensive timber lands that cover approximately 500 square miles.

Any visitor to the town and the mill is impressed by the fine relationship between labor and management in the Oxford picture. Interesting is a recent program of job training for GIs which has placed many young men into useful occupation in the mill.

### Varied Pulp Operations

For many years Rumford has been a soda and sulfite operation, but the improvements in the pulp end have set it on a kraft operation as well. Whether it will move completely from soda to kraft may depend on many factors, but the important point is that Oxford's present equipment is designed for either one or the other. It offers Oxford a much wider versatility in the utilization of both hardwood and softwood species and this is a contribution to the industrial longevity of the state itself. In fact, Oxford was a pioneer in Maine in moving into the vast improvements in the recovery of soda for re-use, the evaporation and concentration of liquor and the burning of its organic materials to produce power—along with its conversion toward the sulfate process. The present combination is important even beyond wood utilization, because it means even stronger quality papers on a competitive basis. The new Combustion Engineering recovery unit will handle 611,000 pounds of dry solids every 24 hours. The pressure is designed for 750 p.s.i. operating steam temperature of 725° F. The pulping improvements include six new shop welded steel vertical digesters 423" by 10'6", one of which is stainless steel clad on the inside. All were built by A. O. Smith Co. of Milwaukee and fitted with circulating systems designed to operate with direct steam supply. The new digesters are for hardwoods in the sulfate system and there are more to come for cooking softwoods. It should be noted that the hardwoods system considerably extends Oxford's timber supply.

Three of the new buildings are from designs by Hardy S. Ferguson. These are: A building for the new No. 12 machine; a building for the supercalenders, rewinders, roll finishing, and shipping; and the building for the recovery furnace and waste heat boiler. The machine building and the finishing building are steel-frame, brick wall structures with glass-block windows, and both are equipped with air washers. The recovery building is steel and brick with glazed transom-type windows.

The new building and equipment for the back pressure turbine, and alterations to permit housing of a 750 p.s.i. steam generator, were designed by the Charles T. Main Company. All these structures were built by Aberthaw of Boston. The construction and modernization program was carried out under the supervision of Harry J. Buncke, manager of engineering. With the exception of new buildings mentioned above, all modifications in process, designs and equipment installations were carried out in Oxford's engineering, mechanical, electrical and research organizations. On all phases of the program there was a close working arrangement with operating departments where changes and additions were carried out. The high quality of Oxford paper is thus assured by a complete integration of experienced know-how.

Like all mills of its type, the Rumford plant originally leaned heavily on the use



REX W. HOVEY, Executive Vice President of Oxford Paper Co.

of beaters, but the new pulp preparation layout features a new installation of three Jones Majestic jordan. Two of these units are arranged with special filling for beating and the third serves as machine jordan. Notable and particularly new are the two Trimbey metering machines which accurately meter and blend soda, sulfite, kraft, broke and ground-wood.

### The New Paper Machine

Heart of the revised paper production set-up is the new Rice, Barton machine in its new building whose interior is in three tones of green. Three other machines have been almost completely rebuilt. Top secret at Rumford, by agreement with the patent-holders, is the machine coating process. All Oxford will say for publication is that it is a huge success and the users of the paper seem to agree. This machine coating process is located between the two dryer sections in two of the machines. Any further data is available only to those who arrange for the rights to use the process. The big machine works mainly on machine coated text. Oxford, previous to adopting machine coating, was already a leader in coated papers, operating nine single coater machines and three double coaters.

Getting to the new machine, three Bird screens are followed by a Valley Iron Works head box and high pressure inlet. The Fourdrinier section is a removable, variable pitch unit of the latest design, and remover equipment is controlled by a combination of mechanical and hydraulic components. Breast roll control is hydraulic, very quick in returning to alignment, the hydraulic controls being supplied by Vickers, Inc.

The wire is 163½ inches in width by 80 feet in length, and the designed speed of the machine is 1200 fpm. Eight-inch rubber covered table rolls are followed by a seven-box suction section with a



# 16 Camachines

SERVE THE PAPER MACHINES AND FINISHING ROOMS

at the great Rumford mill

OXFORD PAPER COMPANY

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new folder—



**Get the Facts!** This is the first bulletin to be published describing and illustrating the sensational new engineering values which are being built into the fast new Camachine mill type winders. Write for your free copy of "Mile-a-Minute", today!

**OVER THE YEARS** 16 Camachines (winders, slitters, rewinders and automatic web tension machines) have been installed at the winding end of paper machines and in the finishing rooms at Oxford's Rumford (Me.) mill, largest operation of its kind in the world. Now, Camachines are chosen again to play an important part in the expansion program at Rumford. Again and again—where quality standards are highest you'll always find Camachines.

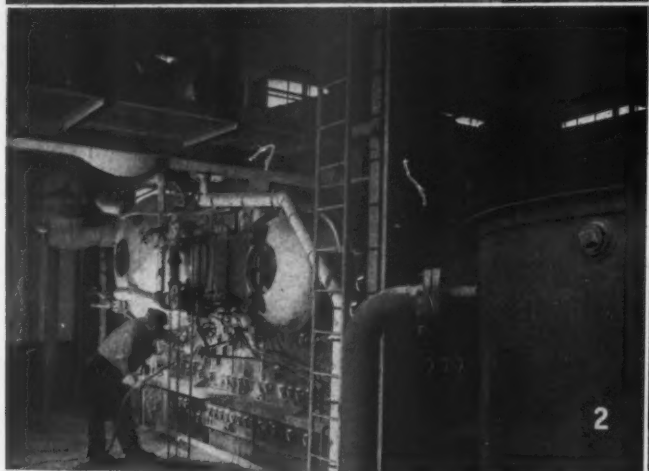
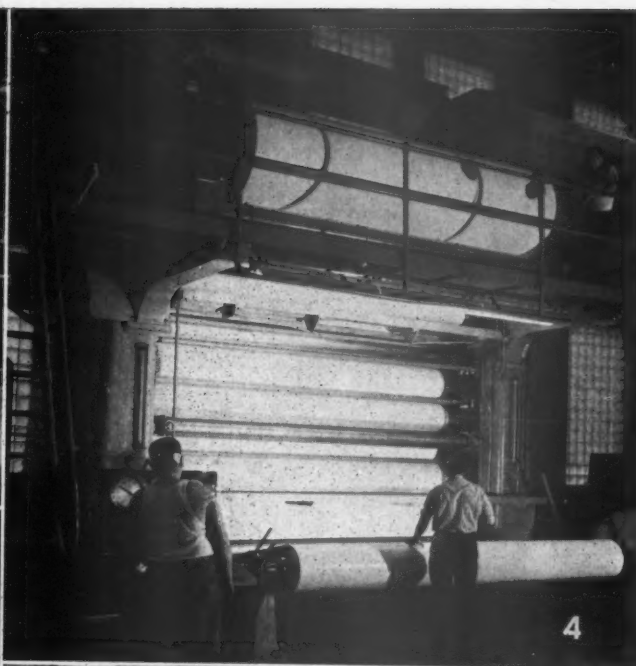
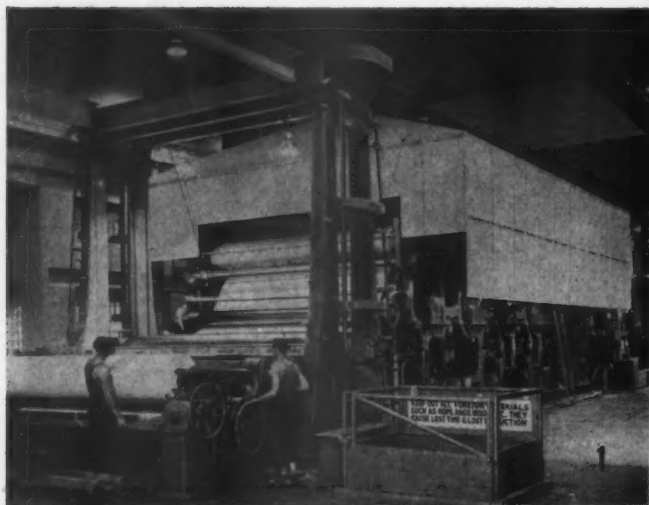
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December 1949

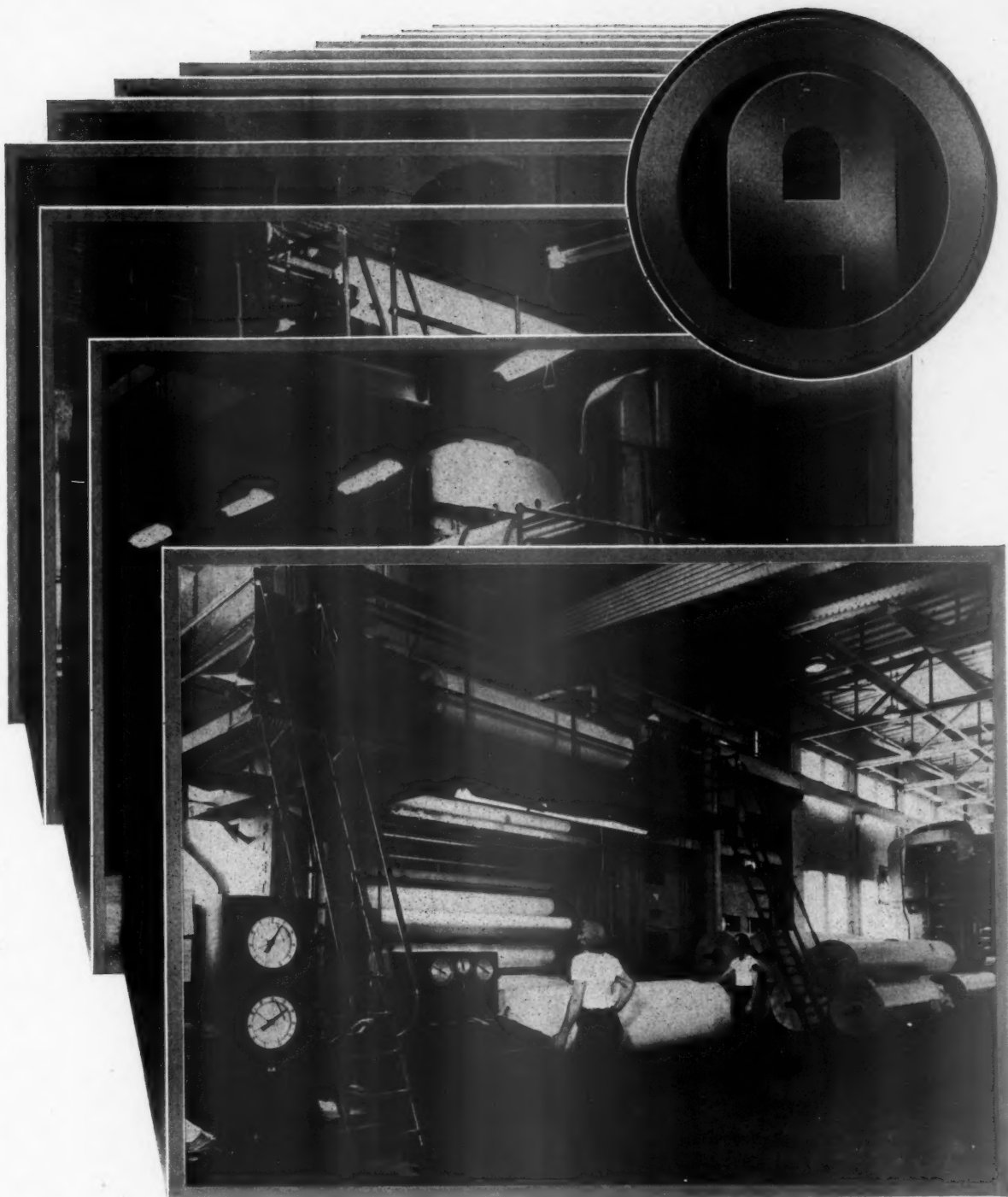
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VIEWS OF OXFORD PAPER CO. equipment at Rumford, Me.: 1—Dry end of the new No. 12 Rice Barton machine (also has a second head). Coating equipment is installed between the two sections. 2—The Combustion-Engineering recovery unit. Pressure is designed for 750 lbs. and there is total steam pressure of 725. 3—Power plant; recovery, at left. 4—One of two Appleton Machine supercalenders, 154 inches wide, of ten-roll double finishing type equipped with anti-friction bearings throughout. 5—New General Electric turbine installation in power house. 6—One of two Trimbay meters which measure sulfite, soda, broke and groundwood mixtures for the machines.

24-inch motor-driven Sinclair dandy roll. Suction boxes are oscillated by an hydraulic system and vacuum control is Poirier. The machine builders made very wide use of stainless steel and rubber covering in the interests of washing up and general operating cleanliness. White water from the savealls is returned to





## OXFORD • RUMFORD • MAINE

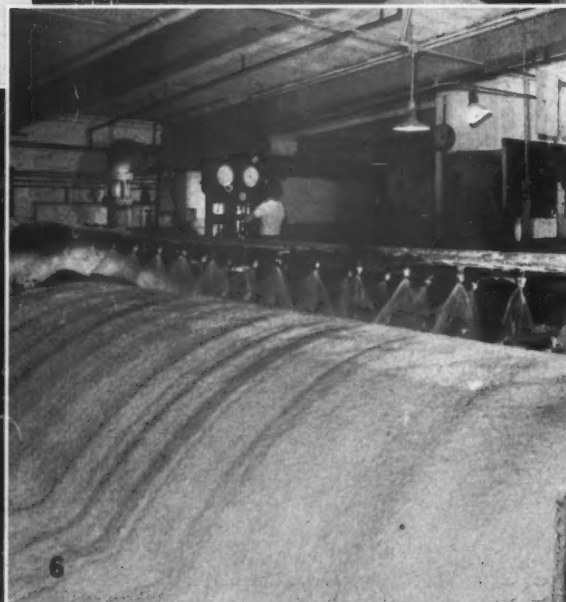
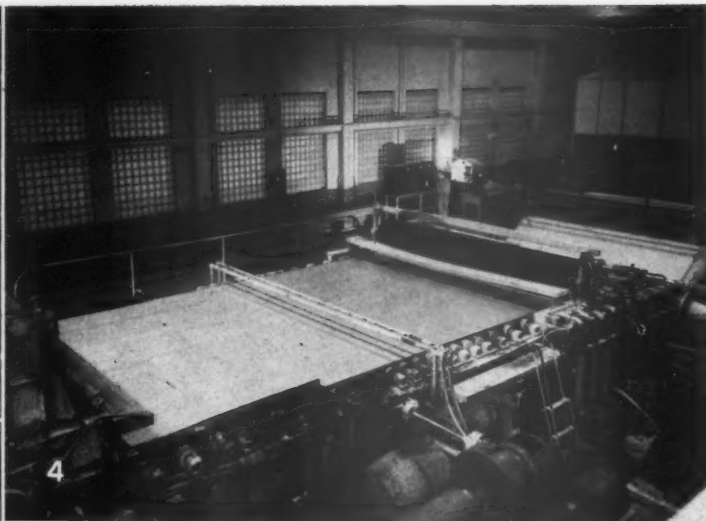
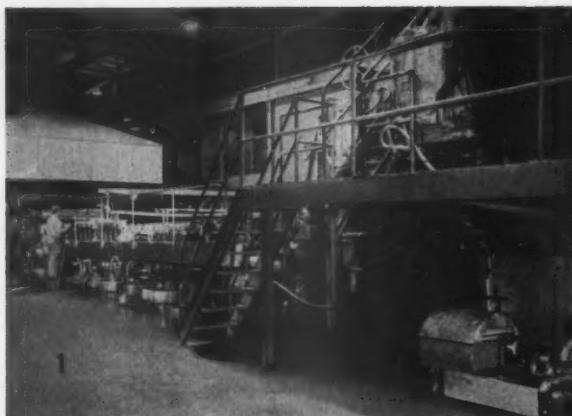
We are very happy to add the name OXFORD to the impressive list of distinguished quality papers now being finished on Appleton Supercalenders.

• • The APPLETON Machine Company • Appleton • Wisconsin

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December 1949

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OXFORD PAPER CO. EQUIPMENT at Rumford, Me.: 1—Valley Iron Works flow box and Voith high-pressure slicer, and the wet end of No. 12 machine. 2—Cameron rewinder in the finishing room. 3—Roll shipping room floor is inclined so rolls are impelled by gravity. Steel conveyor flush with the floor (left foreground) is motor driven. 4—Fourdrinier section of new No. 12 machine designed and built by Rice, Barton Corp. Walls in background are in 3

shades of green. 5—Control balcony of 33,500-H.P. hydro-electric plant of Rumford Falls Power Co., wholly owned subsidiary, 90% of whose output goes to Oxford mill. 6—Attention the operator is giving to the instruments and this Impco rubber-covered washer for sulfite after chlorination stage of bleaching, are examples of the attention given to pulp quality at Rumford.

the pit where it is connected with a special mixing system devised by Oxford.

Leaving the Fourdrinier, the paper passes over a 36-inch diameter suction couch roll. There are tandem shake heads with constant speed motor and me-

chanical speed changer. Between the mill people and the builders an unusual arrangement of water headers was worked out, not the least of whose advantages is time saving on a wire change.

The second unit of the machine is the

dual press in which several new features are apparent for the purpose of simplifying replacement of press felts. Vickery conditioners are used on the press felts. All in all, time for changing felts and wires in this machine has been cut to



# TRIMBEY CONTROLS at OXFORD

## *Insure Mechanically Accurate Proportions*

### Proportioning and Metering Systems are Continuous and Automatic

**I**N contrast to the Beater BATCH METHOD employed for preparing the furnish for the other paper machines, machines No. 11 and 12 at the Oxford Paper Company are supplied by Trimbey Continuous Proportioning and Metering Systems (as mentioned in the article appearing in this issue of "Pulp and Paper").

Continuous and automatic, each SYSTEM, driven by a 2 H.P. motor, has four large meters for the four kinds of pulp to be used, and smaller meters for colors, size, etc. Meters are miniature under-shot waterwheels and have known capacities per revolution.

Since proportions are changed from time to time, speed of each meter must be capable of being varied in relation to the speeds of the other meters. Then too, total amount of furnish is varied now and then, which makes it necessary to change the speed of the entire group of meters.

The drive motor is connected to the input shaft of a Link-Belt variable speed drive by a Silent Chain. The output shaft of the PIV is coupled to the input shafts of four PIV's, one for each pulp meter. This forms a line shaft to which are connected (1) input shaft of Link-Belt VRD variable drive which drives the smaller meters, etc., and (2) input shaft of a gear-reducing mechanism used for colors.

Output shafts of the various intermediate PIV units are coupled to gear-reducers and then by roller chain drives to horizontal rotary meters.

Knowing capacity-per-revolution of each meter, the SYSTEM is calibrated by taking speed readings of individual meters for each dial position of its PIV or VRD when Master PIV, attached to the motor drive, is at its mid-point. Curves are then prepared to show the percentage of each pulp which will be delivered



View of part of Trimbey Metering and Proportioning installation at Oxford Paper Co. mill, Rumford, Me.

for each dial position. Similar calibrations are made for the meters for size, color, etc. From the plotted curves, the operator knows exactly where to set each variable-speed unit to obtain the desired specifications for the paper to be made at that time. Setting of the Master PIV changes total tonnage rate without altering proportions.

All pulps must first have been reduced to the "slush" form and given the desired "brushing" action, aside from a final handling in a jordan before going to the paper machine.

#### TRIMBEY CONSISTENCY REGULATORS

##### *Keep Pulp Uniform*

The consistency of each pulp is kept at a definite and uniform value by means of TRIMBEY Consistency Regulators.

The quantity of pulp, or other ingredient, delivered to each meter supply compartment is controlled by means of an automatic valve.

Power is saved as the 50 or more H.P. motor to drive a Beater is replaced by the 2 H.P. Motor used to drive the METERING SYSTEM. The entire SYSTEM occupies a floor space about 8' x 12' x 6' high.

## TRIMBEY MACHINE WORKS

GLENS FALLS, N.Y.

ALSO MANUFACTURERS OF CENTRIFUGAL PULP SCREENS AND DIRECT-ACTING FLOAT VALVES

Trimbey Pulp Screens made and sold in Canada by FOSTER-WHEELER, LTD., St. Catharines, Ontario. Canadian inquiries for other Trimbey Equipment should be directed to Glens Falls, N. Y.



**LEADERS AT OXFORD PAPER CO.**  
Group at left (l. to r.): H. H. HOLDEN, Vice President in Charge of Sales; D. APPLETON, Vice President in Charge of Manufacturing; T. E. BRUNING, Treasurer.

Group at right (l. to r.): T. F. SPEAR, Asst. Vice President, Rumford and Mill Manager; WM. H. CHISHOLM, Asst. to the President; and J. EVERETT SHEA, Manager of Purchasing Dept.



the absolute minimum now attained in the industry.

The smoothing press is of conventional design. The first dryer section has a total of 36 dryers in two sub-sections. The entire machine is of course equipped with anti-friction bearings; the SKF dryer bearings providing for expansion and contraction of the 60-inch diameter dryer cylinders, are of particular interest. The gearing system is totally enclosed and automatically lubricated. Considerable study went into the location of the dryer doctors which are provided with hydraulic oscillating equipment. Lodging and Bird dryer doctors are used. In the second dryer section there are eleven paper dryers together with two felt dryers, one top and one bottom. The calender stacks are of Rice, Barton design, including the frames and bearings, carrying a series of Farrell-Birmingham rolls. The coating equipment is located between the two dryer sections.

The reel is Rice Barton design throughout, and so is the following unwinding unit. Final unit on the machine is a Cameron winder with score-type slitters and pneumatic control. The winder drive is a G.E. regenerative braking type, with automatic tension control. The drive for the entire No. 12 is the GE electronic control type to give draw control between the various units.

Major rebuilding jobs were carried out on machines 6, A and 11 designed to meet customer requirements. It is of interest to note as well that major changes were made in 1938 to "A" machine and current improvements carry the modernization program further forward.

The No. 6 machine—unlike No. 11 and No. 12—is not designed for machine coating. The sum total of the changes on this machine resulted in a very considerable speed-up from the old rate of 500 fpm. A new uniform speed reel was included, as well as a new Cameron slitter and rewinder. No. 6 is operated by a Westinghouse sectional electric drive. This drive was modernized to include the latest electronic paper mill speed regulator equipment on all sections of the machine.

There were rather complete changes in No. 11, including a new 30-inch Downington suction couch roll, a three roll dual press, the latter having a middle granite roll 34 inches in diameter. Roll movement and pressure are hydraulic-controlled. The dryer part is divided, like the new No. 12, into two sections between which is the machine coating unit. One new and one existing calender stack are being used, both of Lobdell design. The reel is the same as on No. 12, and the winder is Cameron's constant tension type with score-type slitters. The driving arrangement, like that of the new ma-

chine, is GE's electronic control type for speed variation and draw control between the sections.

The new No. 12 machine includes complete heating and ventilating system (including transite hood over both sections) installed by J. O. Ross Engineering Corp. The apparatus is located on a mezzanine, doing away with the necessity of telescope joints in the exhaust stacks. Economizers were arranged for both air and water heating, with by-passes for incoming fresh air. Automatic filters are provided. On the main hood are three units including economizer, exhaust fan, supply fan, auxiliary heaters and air filters. The hood following the coater has a separate exhaust unit. Ross also furnished a scrubber unit for the supercalender and finishing room, which heats, cleans and humidifies incoming air.

This Ross system is an outgrowth of the fact that the No. 11 machine at Rumford had one of the early economizer installations. In 1940 there was installed the Ross Grewin system on this machine, the sixth such system in the mill. When in 1945 the machine was extended a new transite hood over both dryer sections was installed, and economizers arranged so fresh air could be by-passed, and all air was taken from the outside and through automatic filters.

Typical of the modernity of the whole Oxford program is the finishing building in both design and equipment. It is located adjacent to the new paper machine and within easy access of the control laboratories. The ground floor of this building is used for storing and loading of the finished product and is provided with the most modern materials handling equipment.

Materials handling, in fact, is worthy of independent mention in the Oxford story. It is exemplified not only in the handling of finished product, but in the handling of supplies as well. A good example of the latter is the Fuller pneumatic clay handling equipment which is used for taking clay from cars to storage, and from storage to the service bins over the processing equipment. In the finishing end, all rolls are delivered to the roll finishing room by electric floor truck or overhead monorail crane equipment. Rolls are handled at various steps in the process in the roll finishing room either by five overhead traveling cranes, floor level roll handling conveyors, or automatic hydraulic de-elevators. Excellent materials handling engineering is visible, too, in the handling of broke to the broke beater by means of a long 48-inch rubber belt conveyor operating below the floor level. Shavings from the rewinders are transported by air to the broke beater.

Rolls for shipping are handled from a storage area with an inclined feed to the delivery point at the shipping platform. Various types of electric floor trucks are used. Skids and cases are moved from the sheet finishing area to cars by electric elevating platform trucks down a hydraulic elevator.

A portion of the ground floor of the finishing building is devoted to the concrete foundations and electric machinery for the super-calenders. On the next floor is the housing for the supercalenders, re-winders, equipment control boards, and superintendent's office. Space between calenders and the Cameron re-winders permits handling rolls to and from supercalenders and for storage of core spools.

At present there are two Appleton supercalenders in operation supercalendering machine coated papers. The units are both left-hand 154-inch wide, 10-roll double finishing type stacks equipped with anti-friction bearings throughout and are designed and built to operate at a maximum speed of 1800 fpm and maximum bottom nip pressure of 2000 pounds per inch of face width. Equipment is provided with a combined nip pressure loading and roll raising system. Lubrication for the calender roll bearings is also self-contained and enclosed. Auxiliary equipment controlling the web behavior consists of automatic electric tension unwind and windup of the center wind type. Apparatus is designed to accommodate rolls of paper wound on eight-inch diameter spools and weighing up to 10,000 pounds.

As mentioned, the monorail crane system and steel conveyor belts flush with the floor combine in a smooth system for handling rolls. The de-elevator takes the rolls to a loading level below, automatically ejects them, and returns to the supercalender floor, all without manual operation. The slight floor incline propels the rolls by gravity.

From this point the paper is taken by lift trucks to the loading platform which is a quarter of a mile in length and can handle 23 cars under cover. It is probably the longest heated undercover platform in the industry. And it is here on the Maine Central branch line that Oxford papers start on their way to customers everywhere. On the shipping labels are some of the greatest names in the paper-using industries the world around.

The late Hugh Chisholm, Sr., could scarcely have foreseen, on that wintry day on his drive from Bethel, the modernized paper mill as Rumford knows it today. But most certainly he had the broad outlines of the vision. When he saw the timber and the falls he knew that Rumford was the place.

## Kimberly-Clark: magazine and book



In this modern plant at Niagara, Wisconsin, a substantial part of Kimberly-Clark Corporation's high-quality book and magazine paper is being produced. It is the northernmost mill operated by K-C in the United States. Machinery and equipment have been kept up-to-date, the latest step being the addition, in 1948, of a 246" High Speed Fourdrinier Machine and Super Calender, both by Beloit . . . builders of fine paper-making machinery for industry leaders since 1858.—*Beloit Iron Works, Beloit, Wisconsin.*



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# BELOIT

## PAPER MACHINERY



# EUROPEAN TOUR REPORT

"One of the things a visitor to Europe should be careful about is being too sure of his answers," remarked Harry G. Specht (right), vice president of Eastwood-Nealley Corp., Belleville, N. J. Mr. Specht and his family recently traveled 8000 miles in their own car through France, Italy, Switzerland, Germany, Luxembourg, Belgium, Holland, England, Scotland and Ireland.



"Even after an extensive visit, and during which I tried to penetrate into the thinking and conditions, I find it difficult to project the present into the future," he said in an exclusive interview with PULP & PAPER. "There are too many factors," he added, "and too many governments, some under almost constant change, and almost all showing some signs of instability."

Mr. Specht, known for years throughout the industry for his keen insight and study, left the other side too early to observe the full effects of devaluation. But he holds the belief that England has not found the answer in her dropping of the pound rate; and he believes Sweden and Norway will tend to sell pulp in the U.S. at a competing price. Yet, here again, he cautioned, statements must be tempered by the thought of what can happen next week or month.

"Take the force of the United Nations," he said. "Many people have asked, 'what do they think of it over there?' It depends on with whom you talk. I would say 70% have scarcely heard of it, or have little faith in it. This class of people has been downtrodden so much they have lost faith in everything. Communists and their fringes want the UN to fail. A third group, financially interested in the UN, with jobs or opportunity, will tell you it is a success."

Mr. Specht believes Marshall Plan, ECA, and ERP have been successful and are appreciated, but he is a strong advocate of the U.S. getting out of Europe within three years at the longest. "At least 80% of the people respect and admire us for our efforts," he said. "But they wonder—as we do sometimes—if we are not weakening ourselves in the process, and fear that we may lead them into war with Russia."

Holland, Luxembourg, Denmark and Belgium he rates as back on their feet almost wholly. In France he found farms amazingly productive. Italy, he believes, can be made a more stabilizing influence than France. England he found a sad spot. "I could not help but wonder that England, which did so much to save other countries, is now the poorest fed and the morale of her peoples lower than the conquered," he said.

Mr. Specht visited three paper machinery manufacturers, and found speeds below our standards, except in newsprint. Most mills, he said, are alert to the need for cutting costs, even though plant investment and wages are much lower than in the U.S.

Mr. Specht said all types of paper seemed scarce, that England, because of her crisis, cannot materially increase pulp imports. He said there is likely to be few if any new mills there. The outlet for British paper machinery is in the colonies, the continent and South America. "We must compete in those markets," Mr. Specht said, "and that raises the question as to whether we can if we do not purchase in return."

This month Mr. Specht talked on Europe at the Chemists' Club in New York, and at the technical meeting in Holyoke, Mass.

## TAX RELIEF

Federal tax adjustment for relief of pulp and paper company investments in pulp liquor handling "would go a long way toward putting such programs into effect." Otherwise, the high cost of these installations "would crush many of the smaller mills."

A U. S. Congress sub-committee touring the nation in gathering data on pollution, among other matters, heard this advice from Howard Morgan, speaking as the chairman of the Pacific Coast section of the National Council for Stream Improvement.

Declaring their purpose was to obtain evidence for anti-pollution appropriations as well as tax relief for such projects, Congressmen Victor Wickersham of Oklahoma and Thor Tollefson of Washington conducted a day-long hearing in Seattle Nov. 8.

Sportsmen, fishermen, officials and all kinds of witnesses were heard, and for the most part, they took moderate positions.

Washington State's Director of Fisheries, Alvin Anderson, declared he would insist on collecting exact scientific data on pollution in Puget Sound, where several mills are located, before recommending remedies which might involve great expenditures without solving the problem, if the preliminary research is not made. Spokesman for the state pollution committee took a similar stand.

Mr. Anderson said numerous power dams and farmers' river diversions were a more important cause of fish depletion. "In Washington we are becoming kilowatt-happy and fish-poor," he said.

John Planchich, vice president of the Puget Sound Salmon Cannery Association said a series of articles in the Hearst newspaper in Seattle on pollution were "written from a prejudiced point of view and did not present the problems in their true light."

John Metcalf, a fisherman, announced he was sponsoring an initiative to put a measure on the state ballot in 1950 which would give industries "a reasonable time"



J. W. D. "JACK" HIERLIHY (left), is newly appointed Acting Manager of Fraser Paper, Ltd., Madawaska, Maine, succeeding THOMAS M. BARRY (right), who accepted post of Assistant Manager of Northern Mills (Winslow, Me., and Madison, Me.) of Hollingsworth & Whitney Co. This is recent photo of them taken by PULP & PAPER at Madawaska, just across the river from Fraser's headquarters at Edmundston, N. B.

## PROPOSED

to solve their problem.

Mr. Morgan, who is pulp division manager of Weyerhaeuser Timber Co., said the magnesia base recovery plant at Longview "is not yet completely successful and no one could now be expected to put in such a plant."

### Three Wisconsinites in Europe Studying Sulfite Developments

To study most recent European developments in stream improvements, three Wisconsin experts flew from New York to Sweden Nov. 1. They will spend a month in Sweden and Norway, then go to Germany to observe food and yeast manufacture from sulfite liquor, and to London to discuss torula yeast manufacture from sugar wastes in Jamaica by a British firm.

Jesse M. Holderby (right), research co-ordinator of the Wisconsin - Michigan Sulfite Pulp Manufacturers Research League and general manager of that group's yeast plant at Rhinelander, Wis., is one of the trio. He last visited the German yeast industry in 1946.



With him are N. L. Malcove, technical superintendent, Northern Paper Mills, Green Bay, Wis., and Frank H. Coldwell, assistant manager of power, Neekoosa-Edwards Paper Co., Port Edwards, Wis.

At Stockholm, they joined Nils Eklow, Swedish engineer, assigned last summer to work on the League's experimental Rosenblad sulfite liquor evaporation plant on trial at the Interlake mill in Appleton, Wis.

Scandinavian mills have made progress in reducing the stream problem by evaporating and burning as fuel the spent liquors.

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# CAMAS WOOD PLANT

## HAS MANY REVOLUTIONARY FEATURES

In a specialty pulp and paper mill as large and as diversified as the Camas, Wash., operations of Crown Zellerbach Corp., the construction of entirely new wood preparation plants was bound to bring forth some of the most interesting new engineering developments in this field.

Unlike the big market pulp mills of the Far West, whose modernization programs were mostly concentrated first in the wood rooms and then carried on through pulping and bleaching, the Camas mill began

with an extensive postwar expansion and improvement in its converting and paper making divisions and the new wood preparation plants were left to the last.

A great mill which has trended toward complete integration of a 700-ton pulp and paper capacity with conversion into a wide range of products from paperboard and bags to waxed and household papers and facial tissue, would naturally require a very diversified wood preparation system.

At Camas there are no less than 14 different kinds of pulps being made according to kraft, sulfite and groundwood

process, bleached and unbleached, and species of woods.

The wood set-up not only had to meet all the requirements of such a variety of products, but also it had to meet the problems which have been raised by the new salvage logging techniques of the Far West and the closer utilization of wood and the use of additional species.

So, when these facts are understood, perhaps it is not so surprising that Camas now has a unique wood preparation system with equipment and arrangements

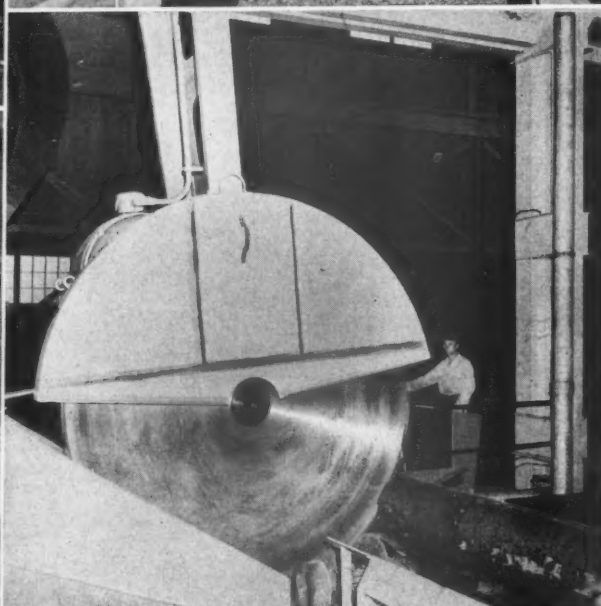
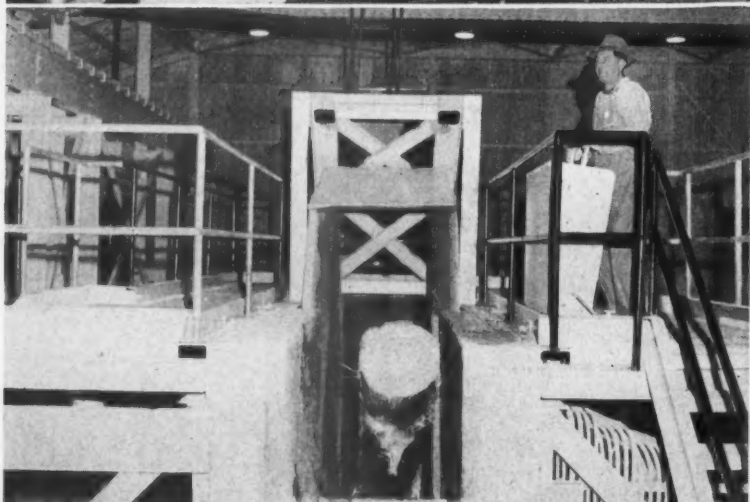
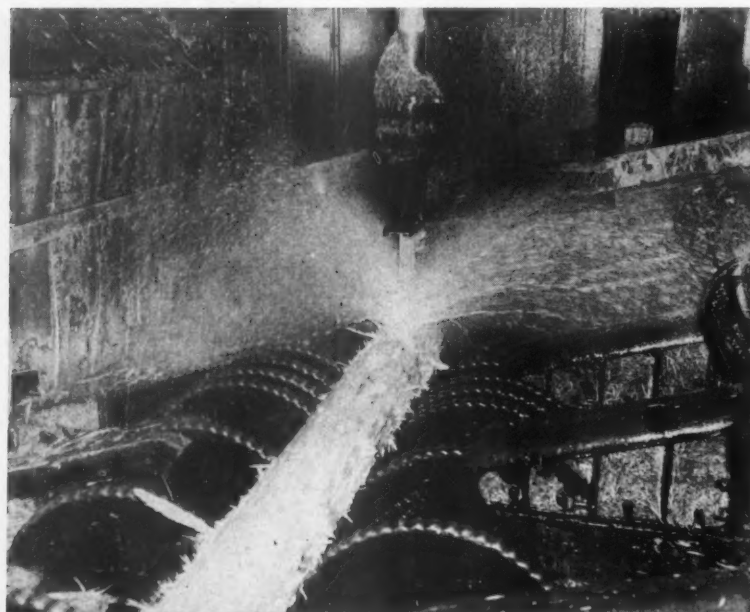
### VIEWS IN CAMAS WOOD PLANT:

Top left: Bellingham type hydraulic barker with Crown Z modifications, including vertical nozzle, made by Sumner Iron Works. All kinds and shapes of logs up to 84 in. diameter and 24 ft. length can be rotated in either direction and varied speeds. Water pressure is up to 1300 p.s.i. and nozzle can be raised or lowered 78 inches.

Lower left: A log drops down chute to Sumner 6-knife 153 in. chipper.

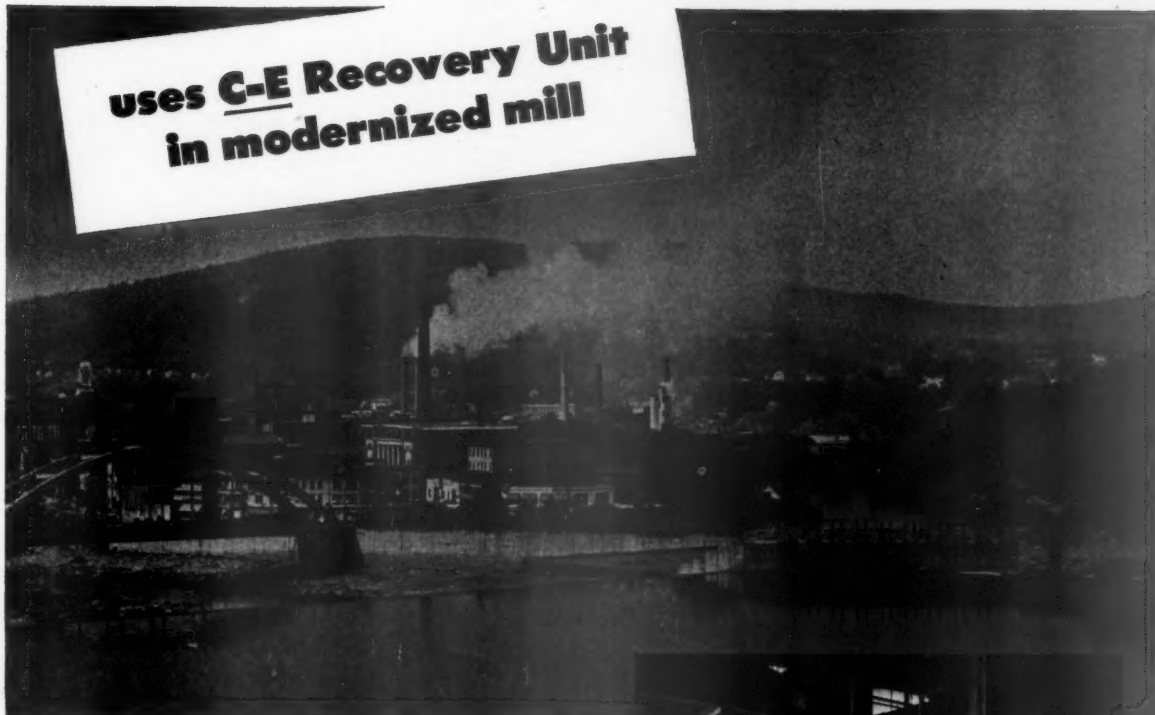
Upper right: Note high capacity of chips on this 46-inch wide Electric Steel & Foundry Co. chain-and-flight conveyor from chipper.

Lower right: Sumner swing cut-off saw installation, with 108-inch saw supplied by Simonds Saw & Steel. New type of electric-operated hydraulic hoist lifts saws to nearby Hanchett saw grinder for sharpening.



## **OXFORD PAPER COMPANY...**

**uses C-E Recovery Unit  
in modernized mill**



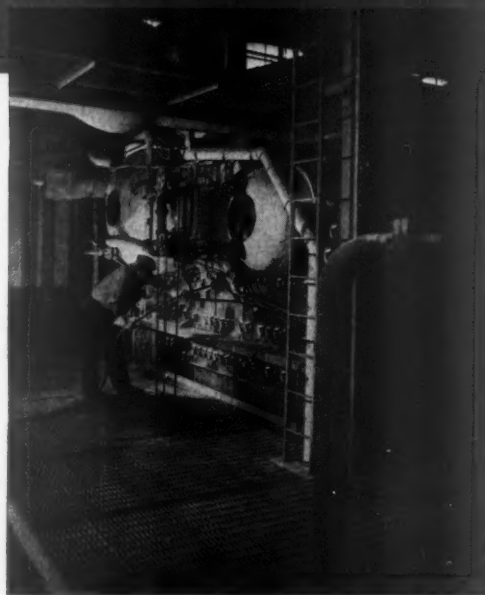
Always quick to avail themselves of the latest developments in pulp and paper manufacture, the Oxford Paper Company has just completed the final phase of a long-term modernization program at its Rumford Mill. Wide improvements have been made in the entire pulping and bleaching operation to keep up with the demand in both quantity and quality of Oxford paper.

A somewhat unusual aspect of this installation is that the C-E Recovery Unit at Oxford is designed for either soda pulping operation or kraft pulping operation. This offers Oxford a much wider utilization of both hardwood and softwood species.

The Recovery Unit itself is designed to handle 611,000 pounds of dry solids every 24 hours. It is designed for 750 pounds pressure and operates at a pressure of 700 pounds per square inch with a temperature of 725° F.

The reliability, economy and operating efficiency of the C-E Recovery Unit are well known. And, as you would expect, more and more companies have selected C-E units both for new installations and in the modernization of existing mills.

B-367



*Hand lancing tubes in the upper superheater area.*

**COMBUSTION  
ENGINEERING—  
SUPERHEATER, INC.**



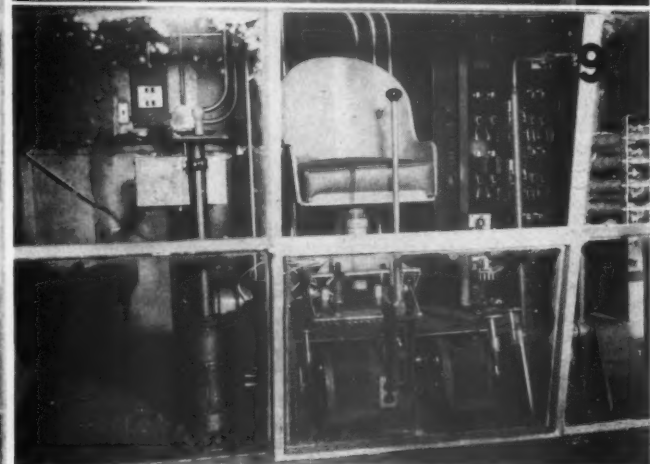
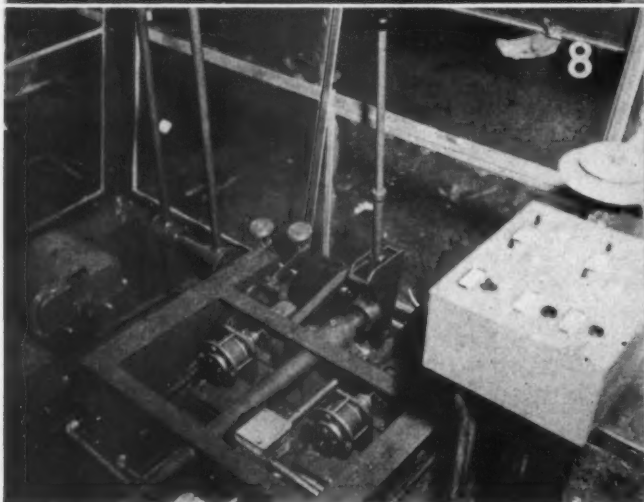
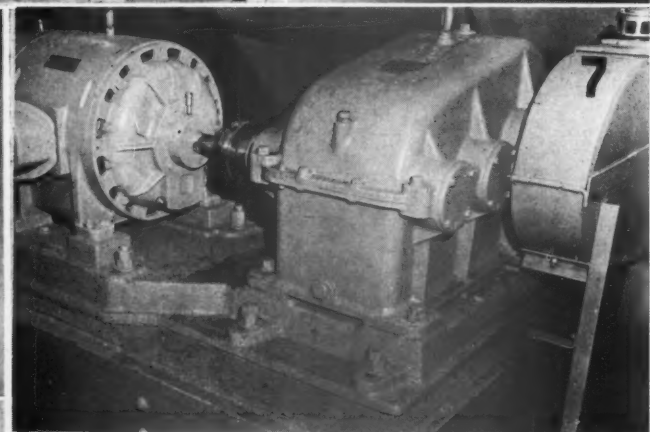
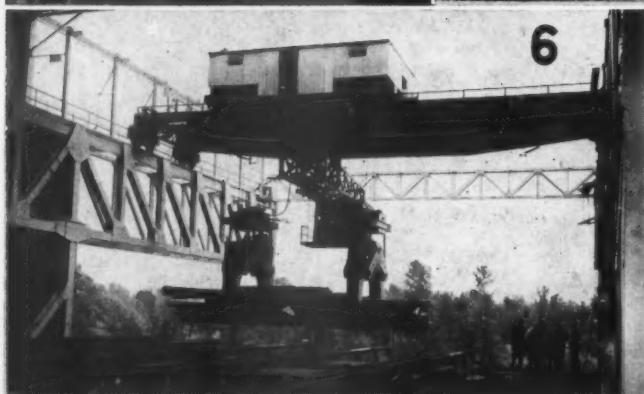
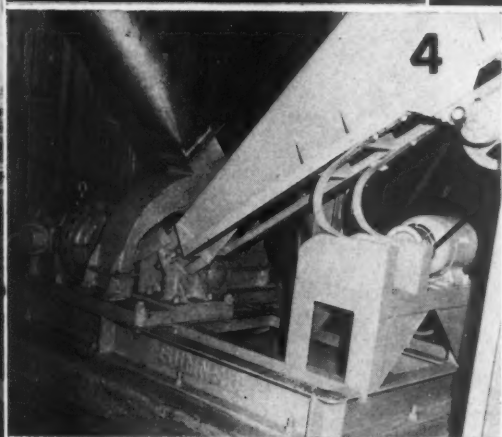
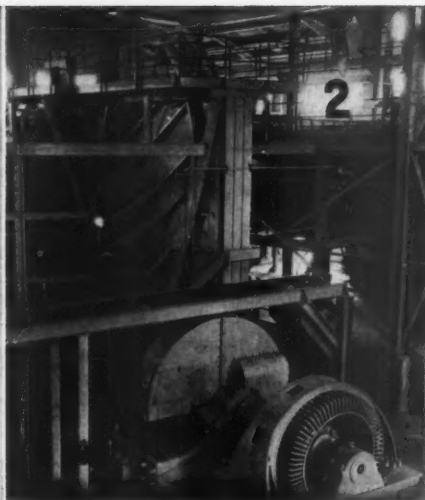
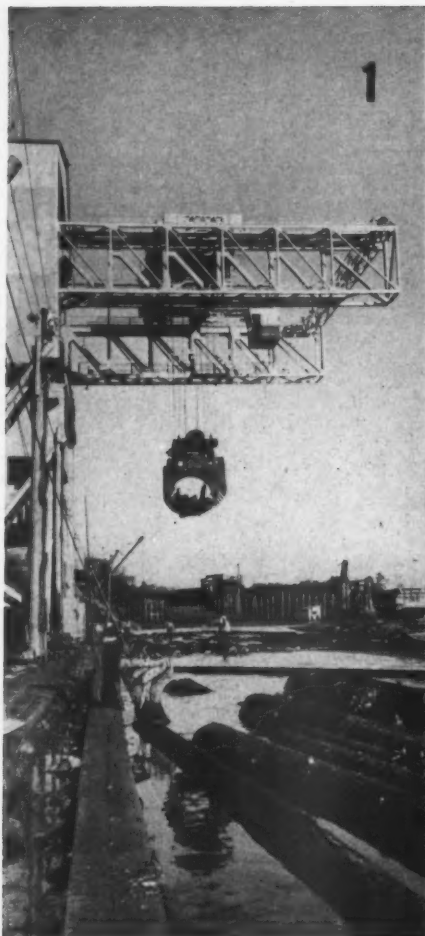
A Merger of Combustion Engineering Company, Inc. and The Superheater Company

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PRODUCTS FOR THE PAPER INDUSTRY INCLUDE RECOVERY UNITS, STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; ALSO PRESSURE VESSELS

December 1949





**CROWN ZELLERBACH'S NEW WOOD PLANT EQUIPMENT VIEWS ON OPPOSITE PAGE:**

1. Largest bridge crane and hydraulically operated grapples Berger ever built. Note logs in grapples and comparative size of men.
2. Westinghouse 1500 hp. motor driving Sumner 153 in. chipper. Chute can be raised and then lowered to let first logs down easily to chipper mouth.
3. Big 72-inch chip conveyor with 45 degree end roll troughing by Link-Belt. Pioneer Rubber supplied belt.
4. Sumner 36-inch disc type re-chipper for chip rejects.
5. Sumner Bellingham type barker control room. Note airplane-type operating wheel.
6. Another view of Berger crane depositing logs on log deck.
7. One of 37 Western Gear herringbone reducers in the plant. Westinghouse motor.
8. Looking down on controls below driver's seat for Berger bridge crane. Electric motor switches are on right. Levers on left are arranged for both individual and combined control of hoist motors. Note small Selsyn motors in middle used for grapple positioning.
9. This view shows operator's seat for Berger bridge crane and grapples. He operates it like an aviator. A joystick directs bridge travel and trolley travel. He moves stick in to travel crane into mill; out, to travel it over water; to either side for trolley travel. Wherever he pushes, compound travel is obtained. Grapples are controlled by foot pedals. Position indicators show relative height of the two grapples. A 4-speed selector switch engages desired gear ratio for loads.

which have never been seen before in this industry. Another thing — there are many refinements and features at Camas that there were omitted from earlier similar wood plants as a concession to shortages, to speed up construction or for economy reasons.

There is at Camas, instead of the orthodox log haul, a huge bridge crane with probably the largest grapples ever made for such a purpose, capable of lifting up to 50 tons of wood in one swoop to a log deck 50 ft. above the average level of Camas Slough, on Columbia River. Bundled salvaged wood is handled this way, and at the other end of the crane rails, wood can similarly be lifted off trucks.

A Bellingham-type whole log hydraulic barker, which "cradles" and turns a wide variety (and any shape) of log on two series of toothed wheels on shafts, has been installed. But there are modifications which make it different than any hydraulic barker ever seen before, including the positioning of the high pressure nozzle pointing vertically downward directly over the log. It also has an unusual airplane-type operating wheel.

There follows a unique revolving arrangement for spudding logs and then, the whole log chipper, which also has features that are different than any seen before in this industry in a chipper installation. Next in line are some of the largest and most extensive rubber belting and conveying equipment ever seen. Four 75-ft. high chip silos are of late design, though not unique, and so is the modern chip screen room, with a new type of low-head vibrating chip screen.

The detailed report which follows on these latest additions at Camas may be considered a sequel to the article in the Dec. 1948 issue of **PULP & PAPER**, which told of the new No. 15 and 14 machines, the new kraft mill, screen room and bleach plant, the new power and recovery units and new converting equipment at

Camas. From the new wood preparation plants, there are up to a half-mile of conveyors carrying chips to their extreme terminal in the sulfite mill.

#### **Another Barker to Be Built**

With the Camas mill using every day the equivalent of close to 1300 cords of wood, although in the shape of logs; even these new facilities are not sufficient. The old wood mill will be used along with the new, until another new hydraulic log barker is built and installed. But when the new barker goes in, it will serve a smaller chipper, instead of the large type, because of the varied requirements of wood quality and cleaning in such a highly diversified paper mill.

And, so, in the end, partly because original losses were not great, and also because of product requirements, the Camas mill cannot be expected to make such a tremendous percentage saving in wood through hydraulic barking and whole log chipping as has been the case in some western mills. However, there will be a saving of from 5% to 7% in wood at Camas — percentagewise not so high as some others, but in quantity this represents many square miles of forests being saved for future years' utilization. It represents actually a possible saving of up to 90 cords a day; or perhaps at least 25,000 cords a year!

The saving, as is well known now, is achieved in the cleaner barking job, elimination of slivers in rough mechanical barking, and the elimination of wood lost in the old process of breaking down a log into numerous cants by sawing — as many as 100 pieces or more.

#### **Description of Buildings**

The large new wood room, some distance to the west of the old one, and that much farther from the Camas mills; the big chip silos and the new chip screen room are the principal new units to be discussed here. All construction work was done by Hoffman Construction Co. of Portland. The structural steel fabrication throughout was the product of Isaacson Iron Works in Seattle. The wood plant and screen room are on Monotube piling and have concrete floors. Above the basements, the framework is steel and both buildings have sidings and roof of corrugated asbestos products of Asbestone Co. of New Orleans. These are fine bright-looking structures, built for permanence, and a far cry from the old days of temporary wooden structures on the wood plants of mills. The wood plant including craneway covers 31,000 sq. ft. of ground area.

#### **Handling of Bundled Logs**

Until a few years ago, all logs were received at the mill in flat rafts. Recently, however, due to the new cleanup or salvage methods of logging, taking out all kinds of wood previously left behind as of no value, Camas has been receiving a considerable portion of logs in the form of bundle rafts. With this method, a complete truck load of logs is banded with strap iron and lowered into the river. State regulations regarding load limits

on highways have, in general, restricted the weight of these individual bundles to 40,000 pounds. However, the Crown Zellerbach Corp. has recently built private logging roads upon which there are no state restrictions as to load limit, and it is presumed that individual bundles of logs weighing up to 100,000 pounds will have to be handled at the mill.

The handling of bundle-type rafts at the mill in the past has presented a problem in that upon breaking the bands some of the logs would sink. Prior to the application of the bundle type raft, the sinker problem was confined mostly to the raft booming areas at the logging operations. Transferring of this problem to the mill operations caused considerable trouble to the extent that it had been necessary to bring in a digger barge about once a month to remove sinkers from the log pond.

To eliminate this problem, the equipment for handling logs to the deck of wood plant is designed along radical lines. The plant does not have a log haul, or even the par buckling type of hoist which is used in a few mills. Instead it is equipped with a bridge crane having two hydraulically operated log grapples either of which may be raised or lowered independently and built by Berger Engineering Co. of Seattle.

A Berger warping hoist is provided to move the log rafts under the bridge crane and grapples. This is a two drum hoist driven by a 25 HP wound rotor induction motor and provides for speeds of 2 feet per minute, 5 feet per minute and 20 feet per minute on the hauling line, and 100 feet per minute on the haul-back line. It is remotely controlled some 150 feet away by the boom men.

The bridge craneway is approximately 270 feet long, 200 feet being above the log deck, and 70 feet being cantilevered over the waters of the Camas slough. The crane and grapples are designed to handle bundle rafts up to 65 feet in length having a net weight of 100,000 pounds. The bridge crane rails are located at an elevation of 95 feet and the log deck at an elevation of 63 feet. These elevations are above the zero level of the river. The water level ranges from a minus 2 feet to a plus 38 feet, but is normally around a 10 foot stage. The hoists are designed for full hoisting speeds of 25, 40, 70 and 146 feet per minute with a bridge speed of 100 feet per minute, and a trolley travel of 80 feet per minute. Hoisting power is provided by two Westinghouse 100 horsepower wound rotor induction motors, one for each grapple, with reactor type control. The 13-ton grapples are opened and closed hydraulically by means of a 40 HP motor-driven pump mounted in a waterproof casing on the grapple itself. The motor is supplied from a drum carrying tyrex cable which pays out or reels in at the same rate that the grapples travel. The grapples open to 14 feet wide, and when closed, will encompass a bundle of logs up to 10 feet in diameter, and can also pick up logs from a flat raft. The capacity of this equipment for handling logs will range from 50,000 FBM per hour when handling small loads of around



30,000 pounds net to a capacity of 90,000 FBM per hour when handling heavy loads in the range of 80,000 pounds net. These capacities are established under maximum lift conditions, that is when the river is at its lowest stage. In narrow Camas Slough, it would have been difficult and very expensive, to have built a conventional log haul to the great height of the operating deck.

The bundles of logs are deposited by the crane on the transfer chains of the log deck. These chains carry the bundle to a series of pneumatically controlled arms which can be raised or lowered from the floor to encompass the bundle and hold it while the bands are cut. Upon removal of the bands, the rear set of bundle arms are lowered, allowing the logs to spill out on the transfer chains of the log deck. On this deck, there is storage space for a few hours of operation if the crane had to idle. At the other end of the deck it can similarly hoist wood off trucks.

Electric Steel Foundry Co. of Portland, Ore., supplied the deck log haul of 165 ft. of 1-1/2 x 2-1/4 x 8 in. Esco manganese chain with 14 x 12 in. alloy steel saddle link chairs.

From this point, the logs are transferred to the swing cut-off saw built by Sumner Iron Works of Everett, Wash. This is a 108 inch diameter circular saw driven by a 75 horsepower motor. Simonds Saw & Steel and Atkins saws have been provided for alternate use and a Hanchett Mfg. Co. Model 772 circular saw grinder. A new type of electrically operated hydraulic hoist is used to lift saws from their operating frame to the grinder. This is an improvement over the conventional hand-operated chain hoist. The logs are cut into 24 foot lengths, and are discharged to the transfer chain which feeds the hydraulic barker.

#### Hydraulic Barker

The hydraulic barker is a modified Bellingham type. The modifications are embodied in the design of the nozzle arrangement, and the entire barker control system as a result of experience gained from the operation of a pilot unit designed by the Camas Engineering Department. This unit has been in operation for the past two years at the old wood mill. The barker control is designed to rotate logs of a wide range in sizes up to 84 inches diameter by 24 ft. long in the trunnions at any selected speed from one to 40 RPM in either direction, and to move the nozzle carriage along the rotating log in a forward or reverse direction at any desired barking speed. The nozzle can be raised or lowered pneumatically through a range of 78 inches for different diameter logs. Stepless speed control of trunnions and nozzle carriage is obtained by direct current motors having Westinghouse Rototrol regulators. An outstanding feature of the control is the airplane type operating wheel which houses all the necessary switches and devices to fully control the barker and make operating simple and convenient. Sumner Iron Works built the barker, also transfer rolls and chains, stops and log moving equipment and auxiliary equipment. A 1,200 g.p.m. Worthington



NEW CAMAS WOOD PLANT, above, was erected at extreme left of C-Z Camas operations pictured below in a general view taken before wood plant erection. In lower picture, at extreme right, is domed roof of new kraft bleach plant; new machine room is in center foreground. New kraft pulp and power plants are in center background.



pump and Westinghouse motor serve the barker.

#### Another Unique Installation

Following the hydraulic barker operations, the logs are discharged to a transfer chain which moves them to the spudding and inspection station. This is another piece of equipment which was designed especially for the Camas mill and has never previously been used in any other wood operations. Instead of spudding the logs as they travel on the transfer chain which is the general practice in most mills, in the Camas operation the log is first transferred to a conveyor having a set of corrugated "V" rolls. In the space between the rolls is a pneumatically controlled arrangement of chains and sprockets which allow the log to be lifted up off the "V" roll conveyor and rotated slowly. Any necessary spudding is done at this station, following which the log will be lowered again and conveyed through the log washer built by Sumner Iron Works.

The log washer washes the entire log with six high pressure nozzles. From the washer, the logs are delivered to the chipper transfer chain.

#### A Different Log Chipper

The whole log chipper is a Sumner 6-knife, 153-inch diameter, two-anvil chipper driven by a Westinghouse 1500 horsepower, 7,000-volt synchronous motor. Logs up to 34 inches diameter can be processed by this chipper. One of the most remarkable features of these whole log chippers is their capacity. This 153 inch chipper, if supplied with logs of 30 inches diameter end to end in a continuous stream, would convert to chips over 200,000 feet board measure of logs (the

equivalent of 400 cords) each hour. The Camas mill maximum daily requirements are approximately 650,000 FBM (about 1300 cords).

This is the first of the large log chippers above 110 inch diameter to be equipped with a sloping bed knife. This change was made in the expectation of obtaining a quality of chip that would compare with the 110-inch and smaller chippers.

A novel arrangement here is an adjustable chute to chipper, so when chipping starts, the first log can be lifted down on the moving chute to chipper mouth, eliminating the falling of a log of many tons against the chipper. This process for saving the chipper from heavy damage and strain can be repeated when there is a break between butt-to-butt feeding of logs.

#### Conveyors and Silos

A high-capacity type of chain-and-flight chip conveyor leads from chipper to chip belt and was made by Electric Steel Foundry Co. It has 230 ft. of manganese chain with special chip flights 46 inches wide and 10 inches high.

Chips are discharged to a big 72-inch belt made by Pioneer Rubber Mills, San Francisco and supplied through Munnell & Sherrill Co., Portland. It travels on No. 460-72 in. 45 degree end roll troughing idlers supplied by the Link-Belt Company. Pioneer engineers designed a belt with ply assembly that would stand troughing at this angle and withstand this extreme flexing. Link-Belt specifications show that 60% increased carrying capacity was added to the conveyor at no extra cost by the deep troughing. A similar belt has shown long wear.

The Pioneer belt transports chips to the top of four large concrete silos, each 44 feet in diameter by approximately 80



# SUMNER

## IS AGAIN PROUD TO HAVE BEEN SELECTED TO FURNISH MACHINERY FOR ANOTHER NEW CROWN ZELLERBACH WOOD ROOM

**This time Crown Zellerbach's Camas (Washington) plant  
—another in the growing list of Pacific Coast pulp and  
paper mills who are using SUMNER-Designed and  
SUMNER-Built equipment.**



Photograph shows, in the foreground, the SUMNER 153"—6-knife Chipper with, above, the SUMNER Feed Chute Lowering and Feeding Device at the recently completed Camas plant of Crown Zellerbach Corporation

*Detailed Information Gladly Furnished on Request*

Camas plant visitors' attention will be promptly attracted by Crown Zellerbach's Bellingham-type Hydraulic Round Log BARKER, the huge 153" disc - diameter 6 - knife Whole Log CHIPPER, the latest in SUMNER design — a 36" disc-diameter RECHIPPER and many more equally impressive SUMNER-Built units including:

- All Log Transfers, Deck Chains, Special Rolls and Conveying Machinery
- 108" Log Deck Swing Cut-Off Saw
- Log Stop and Loaders
- Log Turning Devices
- Log Kickers
- Overhead Canting Gears
- Bundle Opening Arms
- Chipper Feed Device
- #65 All Steel Refuse Hog
- Chip Feeders

# SUMNER

IRON WORKS

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In Canada: CANADIAN SUMNER IRON WORKS LTD., VANCOUVER, B. C.  
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feet high. Each silo has a capacity of approximately 400 units of chips. The big belt also travels across the top of the silos and here a Stephens-Adamson motor driven 72 inch tripper travels from one silo to another as needed for feeding. Chips are discharged from the silos by Link Belt mechanical feeders with a revolving steel plate to a 42-inch Pioneer belt conveyor which transports them to the screen room. This new type revolving disc feeder proved efficient in recent installations in the west. Isaacson Iron Works built the steel hopper inside each silo.

#### Chip Screen Room

Esco supplied a 160 ft. long double strand chip distributing manganese chain conveyor over the chip feeders which supply the screens. It has 2 in. by 12 in. wooden flights and avoids the need of head room and added support for bulkier distributing equipment.

The screen room is equipped with four 6 feet by 16 feet Allis-Chalmers "Low-Head" horizontal type flat-deck vibrating screens, operating in parallel, segregate slivers and fines from suitable chips. Rotary type star feeders ahead of screens remove flow surges and spread chips evenly across screens to take full advantage of screening capacity.

Top screen plates of these units have 1 3/4 in. square perforations through which drop suitable chips and fines, while the lower plate has 3/16 in. circular perforations to retain chips and pass fines. Feed spouts ahead of the screens direct chips onto blank plate to prevent slivers entering the top plate perforations endwise. Driving mechanism, powered through Texrope v-belt drive from electric motor on super structure, imparts high-speed straight line motion at 45 degrees to the screens. Screens are riveted together and annealed to remove warping tendencies; frames are welded and stress relieved.

And space is available in the screen room building for an additional screen if and when it becomes necessary. A 36-inch Sumner disc type rechipper is installed for chipping rejects. This is a newly developed machine. Drew Engineering of Portland, Ore., installed the air system in the screen room for handling fines to the fuel pile.

From the screen room, chips are transported eastward by 36 inch Pioneer belt conveyors and then northward across railroad tracks and east again to tie in with the conveyors from the old chip plant to the pulp mills. As we reported this a very extensive conveying system, about a half mile at its longest extremes.

#### Auxiliary Equipment

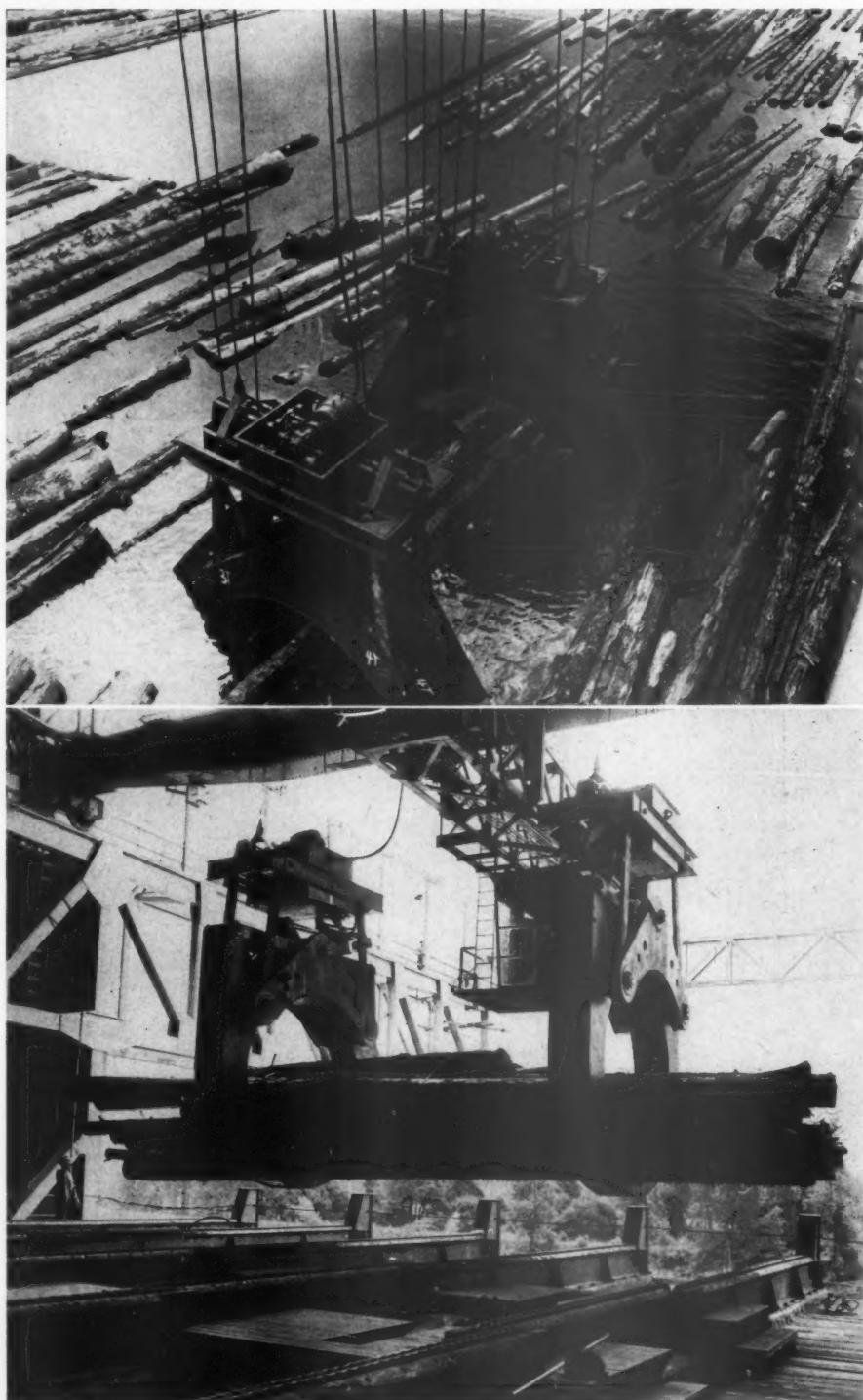
Some of the auxiliary equipment at the new mill is also worthy further de-

scription. The Worthington pump for supplying the hydraulic barker is designed for 1200 gpm and 1300 pounds pressure. The pump is driven by a Westinghouse 1250 hp, 7000 volt squirrel cage induction motor. A 1000 cu. ft. per. min. Worthington duplex compressor driven by a 200 hp synchronous motor provides compressed air at 125 pounds pressure for the operation of the various control cylinders throughout the wood mill. A 62-foot span-bridge crane, supplied by Ederer Engineering Co. of Seattle, with capacity of 40 tons is installed over the 153-inch chipper and over space for a future additional chipper. This was primarily purchased for

the installation of the chippers, but will be available in the event of a major maintenance job on them.

For sharpening chipper knives there is a Hanchett Mfg. Co. Mammoth Traveling Type AK Knife Grinder.

Thirty-seven different gear reduction drives for the new plant were supplied by Western Gear Works of Seattle. These Pacific-Western herringbone gear reducers are employed to drive log transfers, chip conveyors, refuse conveyors, log turning devices and flight conveyors. All but two units are double reduction and the largest, a D-62 of 78.5:1 ratio and 40 H.P. at 1200 R.P.M. powers the first crane-



**TWO CLOSEUPS SHOWING GRAPPLE** section of the new ingenious Berger Engineering Co.'s giant bridge crane which can lift 50 tons of logs in one swoop to the log deck shown in the lower view. This deck is 50 feet above the average level of Camas Slough. Note that the hydraulic pumps above each grapple have been uncovered. In actual practice each has a waterproof cover, but these were removed to show detail.



## 45° Troughing Raises "Pay Load" 30%

From 20% to 30% increased carrying capacity was added to this conveyor belt—at no added cost. One of the world's largest pulp and paper mills needed to carry more wood chips to digesters. This had to be done without sacrificing belt life and dependable operation—for failure here stops a whole cycle of high speed operations.

Deep troughing would carry the increased load. So Pioneer engineers designed a belt with ply assembly that would stand troughing at 45° . . . and withstand this extreme flexing. The plies normally outlast covers—tough as the covers may be. So a longer-life cover was developed to fit the service.

Now well into its second year of operation, this 45° troughed, 36" wide belt, 725 feet long, has run day after day, almost around the clock, and shows no noticeable wear. A new addition to this plant, to be opened soon, will use large quantities of Pioneer belt—much of it deep-troughed, to get that 30% added capacity.

Do you have a belting or hose problem? Give your Pioneer Rubber Mills distributor a chance to help you solve it. His on-the-job know-how is supported by the research laboratories and manufacturing technicians of Pioneer Rubber Mills — the West's Industrial Rubber Goods leader since 1888.

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PORTLAND • EUGENE	Munnell & Sherrill, Inc.
KLAMATH FALLS	Klamath Machinery Co.
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DENVER	Western Belting & Packing Co.



# PIONEER RUBBER MILLS

BELTING • HOSE • PACKING • RUBBER COVERED ROLLS

PIONEER RUBBER MILLS • 345-53 SACRAMENTO ST. • SAN FRANCISCO • BRANCHES: LOS ANGELES • CHICAGO • ST. LOUIS • FACTORIES: PITTSBURG, CALIF.

December 1949

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way transfer. All of the drives are mounted on machined cast iron or fabricated steel bedplates and are equipped with Waldron couplings.

A Sumner No. 65 Vee type hog is installed in a separate building adjacent to the wood mill, and space is provided for a second unit if and when desired. The hog is driven by a 200 hp motor.

Several manganese chain conveyors other than those mentioned were supplied by Electric Steel Foundry.

Power is supplied by one 7200-volt line and one 2300-volt line. 7200-volt service feeds the barker pump motor and chipper pump motor direct, and, in addition, the 550-volt load center. The 2300-volt service feeds the air compressor motor, hog motor, and 72-inch belt drive. Switchgear, load centers, motors and control were furnished by Westinghouse Electric Corp.

The first stage of the new wood mill does not include a head rig for breaking down large logs to the 34-inch size of cant which the chipper can handle. As we have said, it will be necessary to run a part of the old wood mill on large logs. Eventually a head rig, supplementary barking equipment, and possibly one smaller chipper will be added to allow discontinuing all operations at the old wood mill. Four additional chip storage silos are also contemplated in the final scheme.

#### Comparing Old and New Methods

The differences between the method of preparing wood in the old and new wood mill, showing the way in which wood and labor are saved, can best be exemplified by considering the handling of a log 30 inches in diameter and 24 feet in length.

In the new mill, it would not be necessary to put a saw cut in this log at all. It would be barked and chipped in the whole log form.

In the old mill, such a log would first go to the band saw head rig. Here two saw cuts would be made cutting the log into 10-inch by approximately 30-inch by 24 ft. slabs. The slabs would then pass through the edger saws where each slab would have two more saw cuts made. Thus, from the edger would come 9 cants approximately 10-in. by 10-in. by 24 ft. The cants would then pass through the slasher saws where eleven more cuts would be made converting each cant in blocks of wood two feet in length. Thus, a total of 107 saw cuts would be necessary to break down the log into 108 blocks of wood. As the width of the saw cuts vary from  $\frac{1}{4}$  to  $\frac{3}{8}$  inch, one can easily appreciate that there is a considerable loss of wood from saw kerf.

Ninety-six of the 108 blocks will have bark on one side and must pass through the drum barker. Here the bark is removed by tumbling the blocks in a rotating drum. It is necessary to inspect all blocks discharged from the drum barkers for rebarking from 30 to 50 of the blocks depending upon the tightness of the bark.

Accepted blocks from the barkers and inside wood blocks are routed through conveyors and then by flume to the old chipper plant about  $\frac{1}{4}$  mile away.



IN CAMAS CHIP SCREEN ROOM—One of the Allis Chalmers "Low Head" 6x16 horizontal type flat deck vibrating screens. Note how few rejects are shown on the screen portion which is visible, indicating high quality of chips.

#### Personnel Involved in Projects

Principally involved in overseeing these developments at Camas, as well as those reported a year ago in the paper and pulp divisions of the mill, are Jack E. Hanny, vice president in charge of all operations, and R. O. Hunt, his assistant, both of San Francisco; Frank N. Youngman, vice president, Portland, Ore.; Frank A. Drumb, resident manager, and G. W. Charters and A. G. Natwick, assistant resident managers.

Central Engineering Division of Crown Zellerbach, with headquarters in Seattle, designed and supervised construction of new installations at Camas. This department was headed, until his retirement last month, by E. H. Vicary. W. J. Lowndes, now chief engineer; R. P. Hutchinson, assistant chief engineer; and Stanley Ringheim, purchasing supervisor, were his chief assistants.

Directly in charge of the development for the Camas mill management, and working in liaison with Central Engi-

neering, was O. T. (Terry) Defieux, the Liverpool-born, veteran plant engineer at the big Camas mill, who functioned in the same capacity on all the vast post-war expansions at that mill. Of the mill staff, others closely associated with this wood preparation project were B. H. Michels, wood plant superintendent; Fred Stevey, chief electrician; E. C. Cooley, mechanical superintendent; and Lyall Burnett, supervisor of the engineering department.

Contributing also to the design was Frank Swift, who for several years has been deputized by Crown organization in carrying out experimental work in hydraulic barking.

F. H. Camp served as Central Engineering's field representative until Jan. 1, 1949, when he became master mechanic at Ocean Falls, B. C., and was replaced on the Camas job by Frank Swift.

W. H. Rambo, sawmill and wood plant engineering consultant, of Portland, Ore., acted in a consulting capacity and worked out mechanical details of much of the wood preparation plant.

## Electrical Story at Camas

By David C. Fulton  
Westinghouse Electric Corp.,  
Portland, Ore.

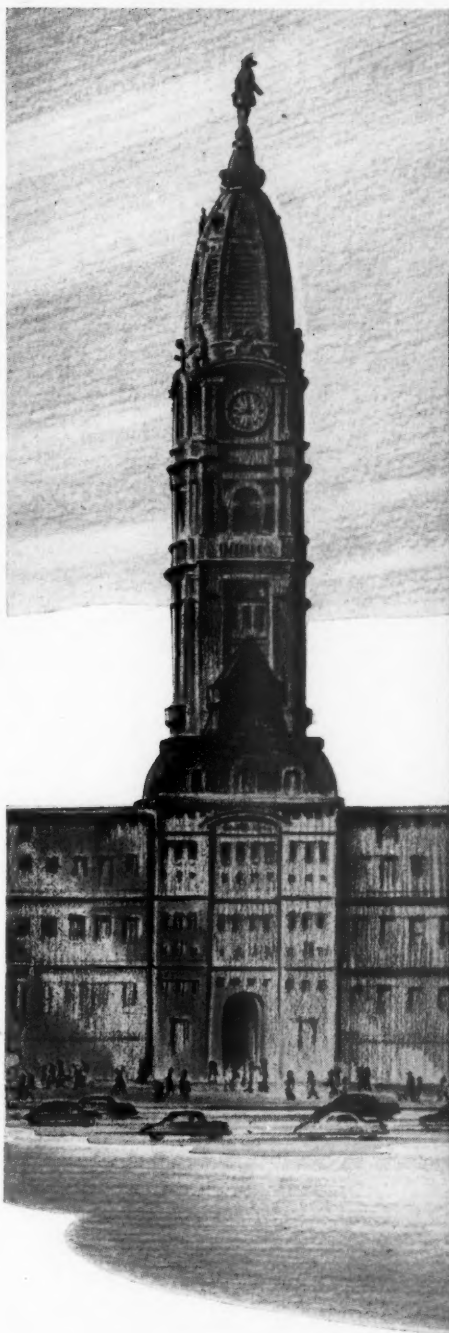
The electrical installation at the new Camas wood mill of Crown Zellerbach Corp. includes a number of features which are typically representative of modern engineering practice. Safety of personnel, continuity of service, and protection of equipment have been carried throughout the design. Major equipment including the power center, control centers, 1500 H.P. chipper motor, 1250 H.P. hydraulic barker pump

motor, hydraulic barker electrical equipment, and auxiliary drive motors were supplied by Westinghouse.

#### Distribution System

Power is supplied by means of two 3-phase feeder circuits at 7200 and 2400 volts, respectively. Motor loads up to and including 75 H.P. are supplied through a 1000 Kv-a. Inerteen cooled 7200 to 600-volt power center, while the motors ranging from 100 through 250 H.P. are supplied from the 2400-volt feeder, and the

(Continued on page 90)



**A CYLINDER MACHINE  
VAT SECTION**  
*as long as the height of  
City Hall, Philadelphia*

Purely imaginative, of course, but it illustrates what all the vats we have built since the end of the war would make if placed side by side. We're conservative in our comparison too, because City Hall, Philadelphia, is 548 feet high to the top of William Penn's hat and the 93 vats would total over 560 feet.

Some of these Downingtown **PROFLOW** and **CONFLOW** Vats are for complete machines, making sheets caliper from 9 to 50 points, and the caliper being held to plus or minus 1/2 point and the weight held to within 2 to 4%. Others are for new liner vats on old machines, to improve coverage with minimum liner usage. Altogether, the vats made, or were added to, a total of 23 machines, one being the "World's Largest Combination Felt and Liner Board Machine" with 10 vats, other big machines being three with 8 vats and three with 7 vats. These 93 vats were built in every possible type of construction.

With our wealth of **MODERN** cylinder machine designing and building experience at Downingtown, a talk with one of our engineers may convince you that "you cannot afford to do without the equipment you think you cannot afford to buy right now." Your problems of quality and production can be discussed and the solution recommended. Call on us.

**Pacific Coast Representative:**  
**JOHN V. ROSLUND**  
Pacific Bldg., Portland 4, Ore.



**DOWNINGTOWN MANUFACTURING COMPANY**  
**DOWNINGTOWN, PA.**

**DESIGNERS AND BUILDERS OF PAPER MAKING MACHINERY SINCE 1880**

December 1949

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FOREST PRODUCTS LABORATORY  
MADISON, WISCONSIN

# BETTER EQUIPMENT MAKES BETTER PAPER

## Gilbert Mill Improves

The Gilbert Paper Co., situated on the Fox River at Menasha, Wis., where it makes quality papers for the printing and office supply trade, has made a number of improvements in its equipment and plant.

In the prevailing industry trend toward better paper through better equipment, the Gilbert firm has spent a million dollars in development.

This paper mill produces 40 tons per day on three machines. The No. 2 and the No. 3 machines have been rebuilt at the wet end. New antifriction bearings were installed along with new table rolls. No. 2 is a Bagley Sewall 100-in. trimming

On the No. 3 machine a new Sandy Hill Iron and Brass Works Dandy Roll drive to 90, and No. 3 is a Rice-Barton 118-in.

A consistency regulator for the No. 3 struments.

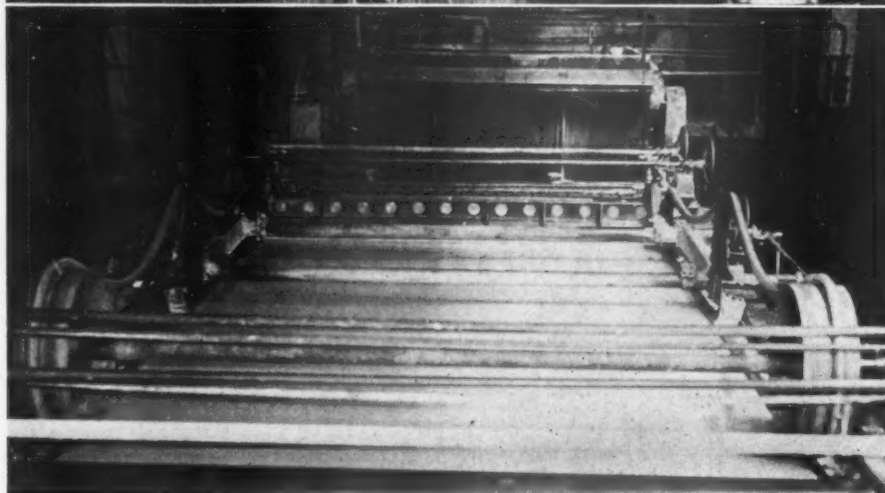
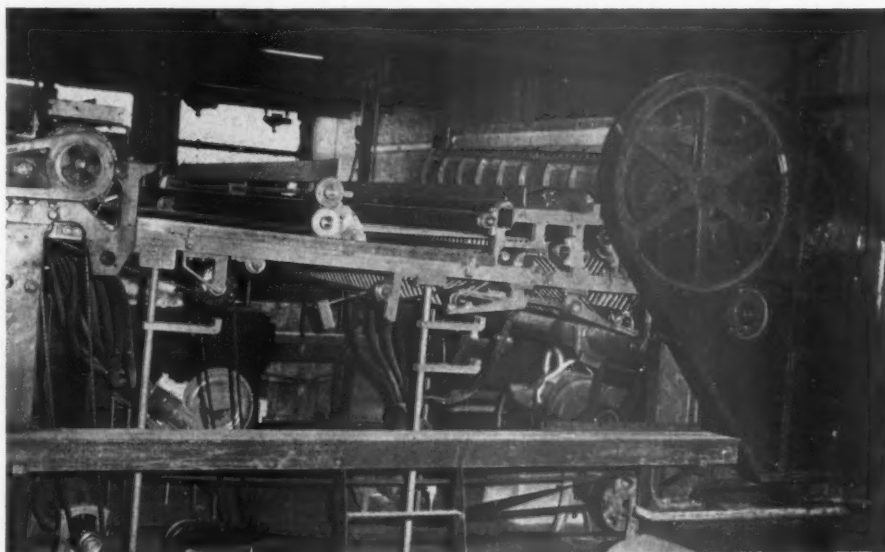
There is a new Shartle Bros. Hydrapulper for batch runs with a 50-ton per day capacity. For the No. 2 and No. 3 were supplied by Foxboro, and the Jones breaker heater controls by Taylor In-operation. Another addition to the No 3 Works stainless steel headboxes are in for watermarking was added.

At the head of these two machines are two new Jones-Bertram beaters, which, machines, new custom-built Valley Iron breaker beater can be operated between the two, combined for a capacity of 3000 pounds. Jones-Bertram beater controls along with a new E. D. Jones & Sons machine is a forced air J. O. Ross drying machine is a new DeZurik pressure type. trimming to 109.

Five new stock chests, using Kalamazoo Tank & Silo tile in their construction, have been added. These chests use either E. D. Jones horizontal agitators or Noble & Wood vertical agitators.

The pumps for handling stock to the No. 2 and No. 3 machines are Allis-Chalmers and Gould pumps. DeZurik 3-way valves, all hydraulically operated, are used by Gilbert for all stock handling.

Evidence of the attention paid to quality and efficiency of production at the Gilbert Mill may be found in the auxiliary equipment that has always been employed with their paper machines. Bird screens and centrifiners are used. Vickery doctors are in evidence on dryers and calender stacks of all three machines. Each machine is equipped with a Bird Saveall for recovering the fibre from



#### EQUIPMENT AT GILBERT PAPER CO. includes:

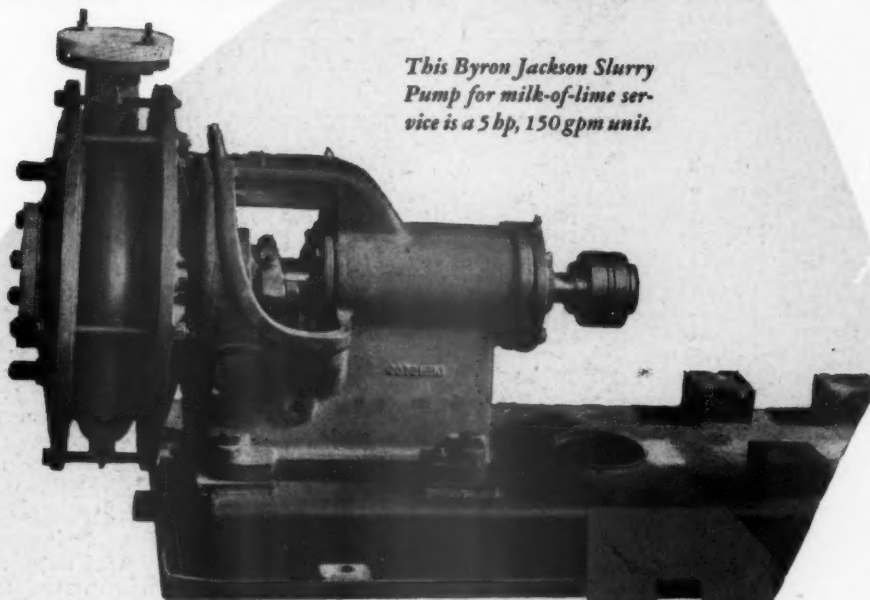
Top—Clark-Aiken cutter and layboy.

Center—One of new stock chests made of Kalamazoo tile.

Bottom—Looking down on Sandy Hill Dandy Roll drive for watermarking on No. 3 machine.



## free from abrasive losses



*This Byron Jackson Slurry Pump for milk-of-lime service is a 5 hp, 150 gpm unit.*

**ALL PUMP PARTS** that contact the abrasive liquid are cast from Ni-hard . . . the finest possible alloy for abrasive conditions. So hard (600 Brinell) you can't drill or tap it. BJ solved this engineering problem by constructing these Slurry Pumps with covers clamped in place by two steel plates—one of the plates is bolted firmly to pump bracket.

**NOTE HOW SIMPLE** dismantling is with the BJ design. The covers are easy to remove. The heavy-duty stuffingbox has a lantern ring with flushing connection.

**BJ MILK-OF-LIME PUMPS** are available in a wide range of sizes. For further information, write for the BJ folder describing pumps for the Pulp and Paper Industry.

**Byron Jackson Co.**

Since 1872

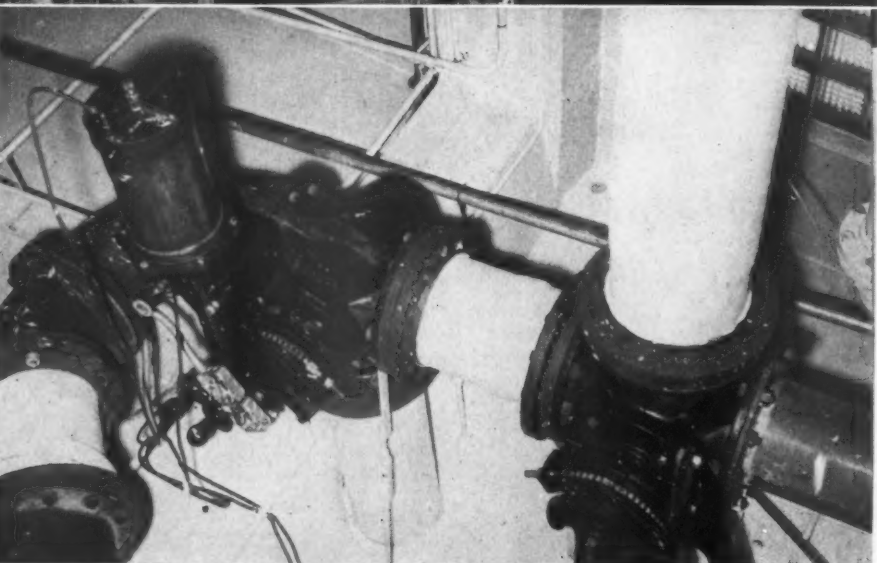
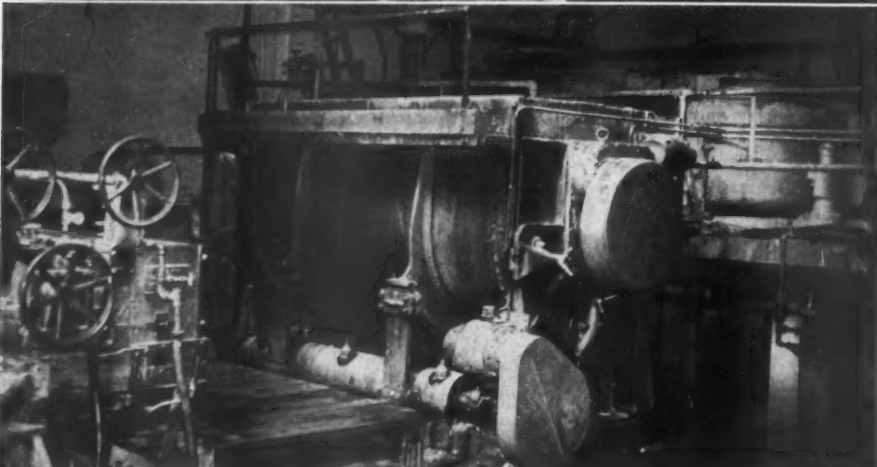
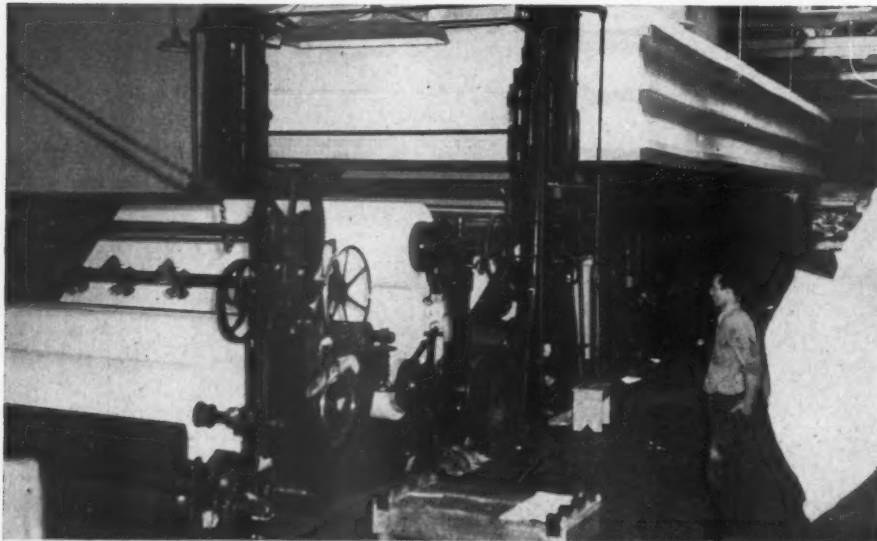
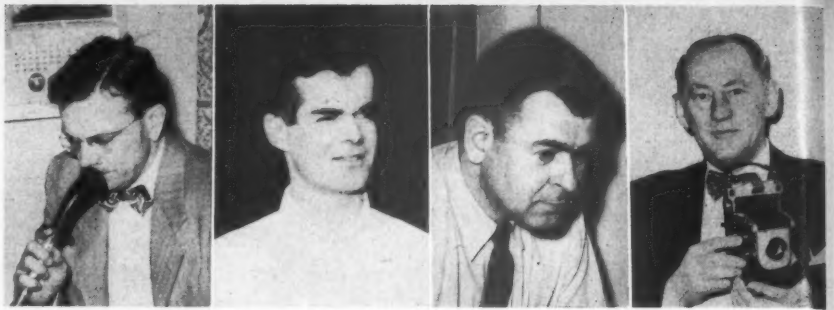
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Offices in Principal Cities

# BJ

*milk-of-lime*  
**pumps**



**LEADERS AT GILBERT PAPER CO.** (left to right) T. M. GILBERT, Treasurer and Sales Manager; T. C. CATLIN, Technical Director and Chief Chemist; E. C. NELSON, Chief Engineer, and A. C. HASELOW, Secretary, a great photography fan who frequently photographs visitors. Here PULP & PAPER's editor was quickest on the draw and shot first.



water leaving the machine.

One of the interesting phases of this new stock handling system is the use of Johns-Manville Transite pipe. This pipe is coupled by Tee-Tite couplings and adaptors made specially for Transite pipe by the Neenah Foundry Co., Neenah, Wis. The elbows for these lines are of the ordinary cast iron variety, according to E. C. (Casey) Nelson, plant engineer, but the fittings are inside-coated with either Amercoat or Heresite. The piping installation was made 18 months ago and has been operating without service since.

The boiler plant came in for considerable attention on the growing theory that a mill operates economically today according to its power facilities. The three boilers deliver 700 hp each and were already a part of the mill. However, they received new settings and new controls. The side walls and bridge wall are now water cooled. One Link-Grate stoker and two Westinghouse underfeeds are used for stoking.

United Conveyor Co. has installed a new ash handling system with a new silo for ash collection.

A new feedwater treatment plant supplied by Allis-Chalmers Mfg. Co., and new Cochran feedwater heater handle the conditioning of the boiler feedwater.

The rebuilt No. 2 and 3 machines are now served by a new Clark-Aiken cutter and layboy that takes full-width production from these machines.

Vortraps are operated on the No. 1 and No. 2 machines in conjunction with Bird Centrifiners.

A new electrical bus-duct distribution system by Trumbull has been installed throughout the mill. This means that electricity is available in a moments connection to the bus-duct at any area in the mill.

The employe was not slighted in the improvement program at Gilbert. There is a new cafeteria building that is idyllic with its wide windows looking out onto the beautiful Fox River. The men's locker and shower room is new as is the first aid room.

The Gilbert offices were enlarged, too.

#### GILBERT EQUIPMENT:

Top—No. 3 machine, one of two recently rebuilt, is a Rice Barton.

Center—Part of Valley Iron stainless steel headbox is shown at left; Bird screen is in the center; Bird centrifiner is in background.

Bottom—DeZurik three-way valves, for stock handling, all hydraulically operated. Also note Transite pipe by Johns-Manville which is coated on interior sides with Amercoat and Heresite.

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**DISTRIBUTORS OF WOOD PULP**

BLEACHED AND UNBLEACHED  
CHEMICAL AND MECHANICAL WOOD PULP



When pulpwood was cut on a big scale, Paul Bunyan would spin a log so fast that the friction barked it clean. He would then walk ashore on the bubbles.

A reproduction of this incident from the fabulous life of Paul Bunyan—the forty-ninth of a series—will be sent on request. It will contain no advertising.



# SOUTHERN MEETING

## I. P. Company Men Attend

After three years of joint sessions with the Southeastern group, the Southern division of superintendents held its annual meeting at the Hotel Frances, Monroe, La., Oct. 24-26. Attendance totaled about 200; there were 58 mill men from 14 mills.

Several papers presented had been given at Atlantic City last summer.

Phil J. Hannan, general superintendent of Southern Advance Bag & Paper Co., Hodge, La., presided. A feature was a trip through the Brown Paper Mills, in West Monroe.

Registration at the meeting of Ion Walker, of the Southern Kraft Division (International Paper Co.) headquarters, Mobile, Ala., and banquet attendance of Howard Hinman, mill manager at Bastrop, La., and son of President John H. Hinman of that company, raised hopes that two decades of non-participation in the superintendents' organization by Southern Kraft will come to an end. Such a step would bring eight big mills into the Southern meetings.

Opening the formal sessions, Dallas Henry, safety man for Southern Advance Bag & Paper Co., gave a frank talk on the high cost of accidents to the industry, stressing the importance of management in control. He cited an industrial plant in which the manager called the superintendents together; told them he wanted no more accidents; and the rate was subsequently cut 50%. For accident control in woodyards, he recommended shin guards, safety shoes and aprons made from old leather belts. Southern Advance sells safety shoes at cost plus 50c—cheaper than work shoes. National Container sells them at cost, at a first-aid station.

**SOUTHERN DIVISION SUPTS.:** (L. to R.): Top row—**L. TUCK MOSELEY**, General Refractories Co., Shreveport, La.; **JOHN A. MINER**, valve division, Crane Co.; **W. J. RILEY** and **FLETCHER W. ASHCRAFT**, both of W. J. Riley Supply Co., Monroe, La.; and **H. B. BARROW**, General Electric, Atlanta (who talked on electric power used in chipper drives).

Bottom row—(Participants in the lime control panel), **CHARLES P. KIRCHEN**, Buckman Lab; **H. E. BERG**, National Aluminate Co.; **VERNON WOODSIDE**, Mathieson Chemical Co., moderator of the panel; **FRED SODERBERG**, General Dyestuffs Corp.; **G. R. KAVANAUGH**, Wallace and Tiernan Co.; **CARL FRIEDRICKS**, Wallace & Tiernan; and **WILLIAM N. MCKEE**, W. A. Cleary Corp.



**OFFICERS OF SUPERINTENDENTS:**

Seated (l. to r.), **CHARLES H. REESE**, Nekoosa-Edwards Paper Co., Port Edwards, Wis., National President; **PHIL J. HANNAN**, Southern Advance Bag & Paper Co., Hodge, La., 1949 Chairman; **OTHA WINNINGHAM**, National Container Corp., Jacksonville, Fla., 1st Vice Chairman. Standing, **JACK J. THOMPSON**, Southland Paper Mills, Lufkin, Tex., 2nd Vice Chairman; **A. F. DOWNEY**, St. Regis Paper Co., Pensacola, Fla., 1950 Chairman.

### Lining of Lime Kilns

C. A. Brashares, Birmingham, Ala., of Harbison-Walker Refractories, furnished a most interesting detailed talk on lining of lime kilns and in connection therewith, where and where not to use insulation. In the rotary kiln, he said, brick lining must have a "tight" fit. When new, the test is to

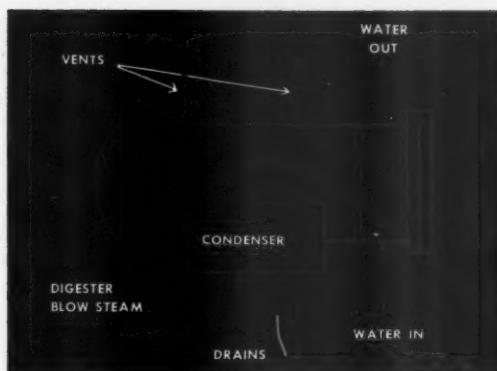
push upward with the palm of the hand and if it gives a quarter inch or more it isn't tight. The final key should be driven with a 3-lb. or 4-lb. hammer and block—not with a sledge. The brick used in a modern recovery boiler lasts much longer than the older installations, leading to better quality selection and more care in fitting. The trend today is away from bulky shapes in tanks or other places, use of smaller units resulting in lower costs and better service.

Economics of use of the heat recuperating chain system for lime kilns, as well as other phases of this operation, were discussed by W. H. Tock, of Allis-Chalmers Mfg. Co. The short rotary lime kiln predominated prior to 1941 but the longer unit has largely prevailed since, the fuel saving being a deciding factor.

Always provocative, the refining of pulp was the subject of a talk by Paul B. Fowler, of E. D. Jones & Sons, his remarks proving a stimulus for discussion. Starting from the premise that no two mills are alike or have identical problems, he urged that all information must be reduced to the simplest basis. He endorsed microscopic inspection in connection with freeness tests, after having defined hydration plus the mechanical operation that may cut, bruise or split the stock.

Types of motors and horsepower required for chipper drives were outlined by H. B. Barrow, Atlanta, Ga., for General Electric Co. The talk given by N. P. Wardwell, Carthage Machine Co., previ-





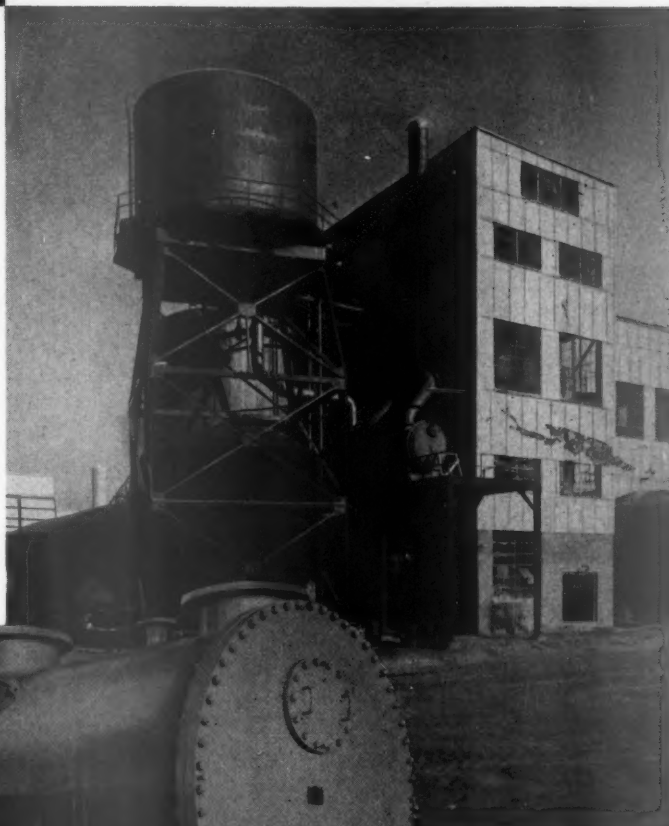
## AGAIN

**the choice  
for profitable  
heat recovery**

After 10 years of successful service, another Foster Wheeler Blowdown Condenser has been ordered by the Hollingsworth & Whitney Company, paper manufacturers, for expanded operation at the company's Mobile, Alabama mill. Average output of the original mill is 200 tons of sulfate pulp per day with approximately 1,800,000 Btu per ton recovered by the Foster Wheeler Blowdown Condenser to heat mill water.

Foster Wheeler offers the paper industry a complete engineering service and all necessary equipment for heat recovery units, digester circulating systems, and process operations such as turpentine recovery and tallol refining.

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165 BROADWAY, NEW YORK 6, N. Y.



**FOSTER WHEELER BLOWDOWN CONDENSER**



ously given at Atlantic City, stressed the savings involved in production of chips by the 10-knife unit as compared with 4-knife.

The Tuesday session opened talks by Bruno E. Prevost, of Emerson Mfg. Co., on automatic jordan pressure control, and Jacob V. Edge, Downingtown Mfg. Co., on instrument recording and other developments of the plain press. Both talks were given at Atlantic City.

A discussion of slime control was led by a panel of which Vernon Woodside of Mathieson was moderator. Those participating included: H. E. Berg, National Aluminate Co.; Fred Soderberg, General Dyestuff Corp.; G. R. Kavanaugh and Carl Friedrichs, Wallace & Tiernan; Charles Kirchen of Buckman; and William N. McKee of W. A. Cleary Corp.

Officers elected for the coming year included: A. F. Downey, of St. Regis Paper Co., Pensacola, Fla., chairman; Otha Winingham, National Container Corp., Jacksonville, Fla., first vice-chairman; John J. Thompson, Southland Paper Mills, Lufkin, Texas, second vice-chairman; A. D. Levert, Gaylord Container Corp., Bogalusa, La., secretary.

Golf prizes awarded by T. R. Moore, general manager of Brown Paper Mills, included: Low net for superintendents, A. F. Downey, St. Regis Paper Co., Pensacola, Fla.; runner up on low net, Joe Bruffy, of the same mill. Low gross for superintendents, Ion Walker, of International Paper Co., Mobile, Ala.; runner up low gross, W. E. Fishburn, Buckeye Cotton Oil Co., Memphis, Tenn. Mr. Downey won the third leg of the John Noble trophy, then in possession of Hank Bormann, of Southern Paperboard, who was not at hand to protect his interest.

Low net for salesmen was by Bob Wing and low gross by W. G. "Pete" Wilson.



## SOUTH

### Wells Becomes Manager Of Champion's Texas Mill

I. D. Wells has been named mill manager at the Pasadena (Texas) plant of the Champion Paper & Fibre Co. Mr. Wells started with the Canton, N. C., mill in 1925 under W. R. Crute. When Mr. Crute went to Texas in 1936 he was accompanied by Mr. Wells who supervised construction of the pulp mill and became general superintendent of mechanical and power departments. Later he became assistant to the mill manager. Mr. Crute continues as division manager at Pasadena.

ROLAND WILBER, Savannah, Ga., who was with Crossett Paper Mill and then with Southern Paperboard Corp., Port Wentworth, Ga., during its construction and initial operation, reports that he is no longer with that company and has not decided on his future plans.



PARTICIPATING AT SOUTHERN SUPTS. MEETING (L. to R.): DALLAS HENRY, Southern Advance Bag & Paper Co.; R. P. ABERCROMBIE, Cheney-Bigelow Wire Works; JACOB V. EDGE, Downingtown Mfg. Co. (who discussed development of plain press); H. (Hank) DUNCAN JONES, St. Petersburg, Fla., who sells Manhattan Rubber and other lines; and BRUNO E. PREVOST, Emerson Mfg. Co.



SUPTS. CONVENTION GROUP (L. to R.): First Row—J. B. HOMAN, A. E. Staley Mfg. Co.; EARL HOBAUGH, St. Joe Paper Co.; GEO. W. HARDAKER, Lockport Felt Co.; SAM CROCKER, JR., John Bolton & Sons; JOHN M. DEGNAN, Manhattan Rubber Div.; and JOHN B. CHANDLER, The Bristol Co.

Second row: C. R. WARDWELL, Carthage Machine Co., demonstrated new Jordan automatic pressure control device; ROBERT T. SMITH, who recently took over New Orleans office of Harbison-Walker Refractories; C. A. (Ham) BRASHARES, Sales Mgr., Harbison-Walker at Birmingham; JOHN J. THOMPSON, Pulp Mill Supt. and J. L. McCULLOUGH, Board Mill Supt. for Southland Paper Mills; and PHIL J. HANNAN, Pulp Mill Supt., Southern Advance Bag & Paper Co., Presiding Chairman of Monday's Program.



IN SOUTHERN NEWS: DR. KARL R. KARLSON (left), now Executive Vice President and General Mgr. of Mobile Paper Mill Co., Mobile, Ala., moving there from Pensacola, where he was with Florida Pulp & Paper, and recently was Manager of both mills there—Florida and Alabama P & P for St. Regis. MARTIN DION (right), who has established a new Southern office in Dallas, Texas, for The Bristol Company, instrument firm.

CHARLES MCCARTHY was named production manager of Southern Paperboard Corp., Port Wentworth, Ga., as part of a general shifting of top supervisory personnel. He formerly served as paper mill superintendent. Claude Adams, formerly chief chemist, was named assistant to Mr. McCarthy. Walter Parsons has been named paper mill superintendent, and William Smith, chief chemist.



HERCULES POWDER CO. men (l. to r.): HENRY REEVES, LOUIS A. THOMPSON, JACK KEOUGH, who comprise new set-up to serve the Southern industry for Hercules, from Atlanta office. Mr. Reeves became acquainted with the industry shortly before the Asheville meeting of the Superintendents' Ass'n. Jack Keough has recently been transferred South, to take the place of Mr. Chapman, who will serve the trade from Portland, Ore. Of course virtually everyone in the Southern industry knows Louis Thompson.

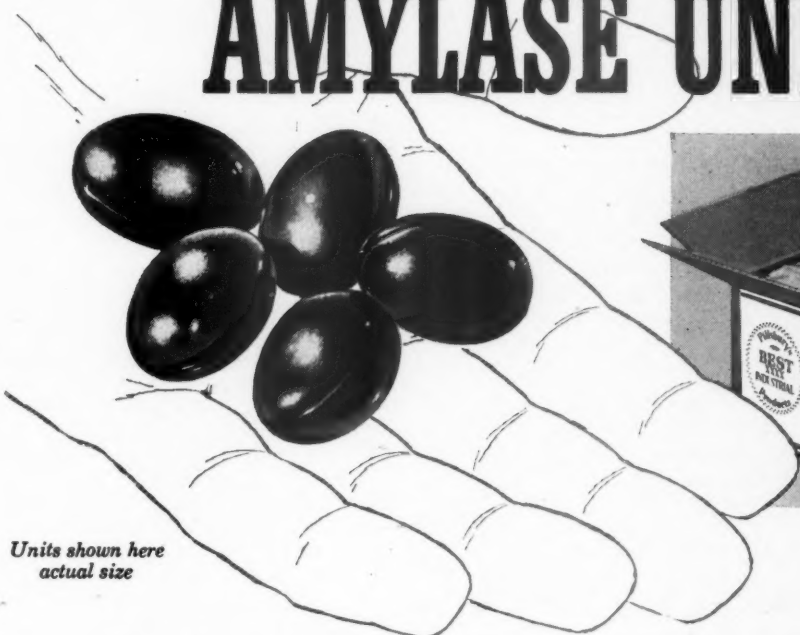
T. GUNTER SMITH, of Atlanta, Ga., southeastern manager for Walworth Co., valve manufacturers, succumbed to a heart attack, Oct. 24, while attending the meeting of the pulp and paper mill superintendents in Monroe, La. A native of Mississippi, he was 45 years of age.



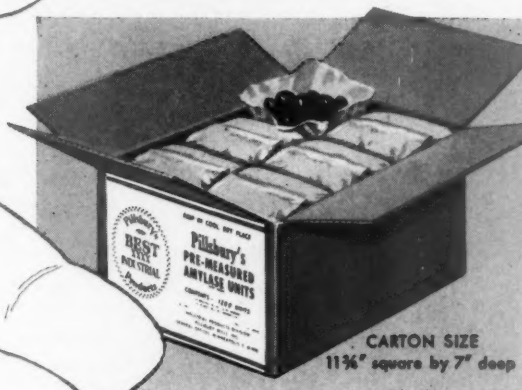
*Revolutionary New Enzyme Development  
for Coating and Tub Sizing!*

# Pillsbury's PRE-MEASURED AMYLASE UNITS

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Units shown here  
actual size



## For the First Time... Enzyme Charges in Soluble Capsules

In the preparation of coatings and tub sizings from starch, the new Pillsbury's Pre-Measured Amylase Units offer you—

**Simplicity**—No more weighing or measuring of enzymes. Just count the small number of units required and toss them into the slurry.

**Efficiency**—Fully protected right up to the moment they are used, these standardized enzyme charges are released at the correct point for greater efficiency.

**Economy**—Total cost of converting is brought down to very few cents per 100 pounds of starch in the average mill. Measuring and handling losses are eliminated, too.

**Accuracy**—No more errors in weighing and measuring enzymes. These stable enzyme units retain their potency indefinitely with ordinary care.

**Superiority**—The enzyme in Pillsbury's Pre-Measured Amylase Units has been selected because of its superior starch-converting properties. It assures end products of maximum adhesiveness and with minimum of specks.

**Convenience**—Easy to use and store. These units come packed in small cartons, 11 3/4" square and 7" deep. This compact size permits speedy parcel post delivery, minimum storage space, and enables your plant to operate on smaller inventories.

### Write for Full Information

—Pillsbury's technical service offers you the experience and technical know-how of men seasoned in the application of enzymes in industry. They are at your service and will cooperate with your organization in running trials without obligation.



PILLSBURY MILLS, INC., INDUSTRIAL PRODUCTS DIVISION, MINNEAPOLIS, MINNESOTA

December 1949

# 2 MILLS SET SAFETY RECORDS

## Thilmany, Longview Fibre on 2nd Million

Thilmany Pulp & Paper Co., Kaukauna, Wis., and Longview Fibre Co., Longview, Wash., outstanding kraft paper mills of the Midwest and Far West (Thilmany was the "parent" mill of Longview Fibre) were rolling along to phenomenal safety records as this issue went to press.

Thilmany Pulp & Paper was adding to its greatest safety record. More than a million man-hours without a lost time accident had been worked in the upper mill; about 400,000 in the lower mill, and over a million in the bag plant. The frequency rate was only 2.22 for nine months.

Karl E. Stansbury, president, praised all employees and credited the record to work of Safety Director Cliff Kemp and his associates.

On Nov. 1, Thilmany had recorded 1,280,831 man-hours with no lost-time accident. On Nov. 15, its western "offspring" had amassed over one million safe hours. L. C. Smith for Thilmany and Boyd Wickwire for Longview Fibre, industrial relations chiefs for the two companies, made the announcements.

Thilmany has set its all-company record in 6 1/2 months.

Thilmany's upper mill alone had a ten months or 300-day no-lost time record of 1,234,595 man-hours. The lower mill's record was for 200 days. The bag plant had operated 870 days without such an accident.

Longview Fibre's 1,650 employees had worked 109 days on Nov. 15 without lost time by injury in the plant. Its frequency

rate for this year to date is 2.44 with only seven employees losing time because of industrial injury. In competition with 35 mills in the Pacific Coast Association, Longview Fibre is now in 6th place. The other 5 mills have a zero frequency for the year.

Longview Fibre's safety program began in earnest in 1946. The frequency rate at that time was 58.1. The program is directed by a central safety committee; composed of: Carl Fahlstrom, assistant resident manager, Vance Roley, bag plant superintendent, Virgil Peters, maintenance superintendent, Dick Mullen, safety engineer, and Ray Bradford, Jim Ryan, Norman Hess, and Arthur Dudonsky, union representatives.

Thilmany men founded Longview Fibre, but today the only connection between the companies is sentimental and historical. R. S. Wertheimer, Jr., vice president and manager at Longview Fibre, whose late father was president of Thilmany, heads a dozen or so ex-Thilmany men at Longview.

## OREGON SAFETY MEETING



GEORGE LAHUSEN, Safety Supervisor, Crown Zellerbach Corp., West Linn, State Chairman for 1949 Oregon conference committee, is speaker. Seated, left to right: R. S. Wertheimer, Secy.-Treas. Coast Association of Manufacturers, and Vice Pres. and Mgr., Longview Fibre Co.; Otto R. Hartwig, General Safety Supervisor, Crown Zellerbach Conference Co-Chairman; John Sherman, Vice Pres., Pulp, Sulfite and Paper Mill Workers; the other Co-Chairman; and John R. Jones, 1st Vice Pres., Papermakers, Albany, N. Y.

A record attendance of 67 representatives met at North Bend, Ore., Oct. 27 and 28 for the 4th annual Labor-Management Safety Conference, sponsored jointly by the AFL unions and Oregon pulp and paper companies. As in past years, similar group meetings were being held this year in Washington and California.

Since inception of the conference in 1946, the accident frequency for participating Oregon mills has been reduced from 38.4 to 8.3 lost-time accidents per million man-hours worked. The combined frequency for the three states participating in the program, Oregon, Washington, and California, is presently 12.2, and for the U.S. industry as a whole 15.15.

The jointly-sponsored three-state program has been cited by the U. S. Department of Labor, the President's Conference on Industrial Safety and the National Safety Council as an outstanding example of labor-management cooperation.

Speakers at North Bend included Paul

Gurske, chairman of the Oregon Industrial Accident Commission; Robert S. Wertheimer, Longview, Wash., secretary of the Pacific Coast Association of Pulp and Paper Manufacturers; John R. Jones, Albany, N. Y., first vice president of the Paper Makers Union; C. Wylie Smith, vice president and manager of Coos Bay Pulp Corp.

Mr. Wertheimer, also vice president and manager of Longview Fibre Co., stated that to be successful "accident prevention must be accorded the same relative importance as quality and quantity of production." He said it tended to create a more efficient operation. The Longview Fibre Co. plant, second largest paper mill on the Pacific Coast, employing 1500 workers, has, to date, operated over 900,000 man-hours since the last time-loss injury to an employee.

George LaHusen, safety supervisor at Crown Zellerbach Corp., West Linn, was conference chairman.

### Coal Strike Comes To Paper Mills

By importing coal from Canada and by changing over to lower grades of coal, many of the coal-dependent paper mills of the Middle West and Northeast states were able to do a fair job of weathering John L. Lewis' coal strike. Inquiries by PULP & PAPER in those areas indicated that many foresighted paper companies had good coal stockpiles or built them up in anticipation of the strike.

However, the strike was a serious threat, and did slow up some operations. For example, at Sutherland Paper Co., in Kalamazoo, one of the biggest board mills, No. 3, did not start up Oct. 24 and thereafter for each week, it was planned for one machine to be down, until the strike ended.

### Bloomer Elected President Radsch V. P., of Appleton Machine

Victor W. Bloomer was elected president of Appleton Machine Co., Appleton, Wis., at a special meeting of directors Oct. 26. He succeeds the late Henry P. Madsen.

Mr. Bloomer has been actively associated with Appleton Machine Co. since 1920 and has been on the board many years. He was secretary from 1935 to 1940 and treasurer from 1940 until his election to the presidency.

Richard Radsch, sales manager for many years, was elected vice president in charge of sales. He came to the organization in 1930 from Thilmany Pulp and Paper Co.

Cecil Furminger, former vice president, was elected treasurer, succeeding Mr. Bloomer. He joined Appleton Machine Co. as an engineer in 1927. Miss Carrie E. Morgan remains as secretary.

# Have You a Problem in any of these Norton-Served Fields?

## NORTON ENGINEERING SERVICE IS READY TO HELP YOU

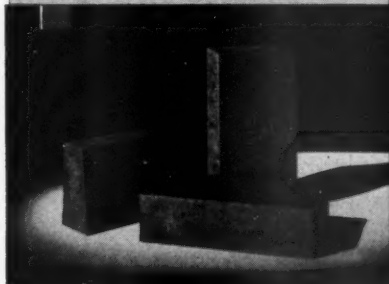
**PULPSTONES**—Available in the correct combination of abrasive, grit size, hardness and structure to meet your mechanical pulp requirements.



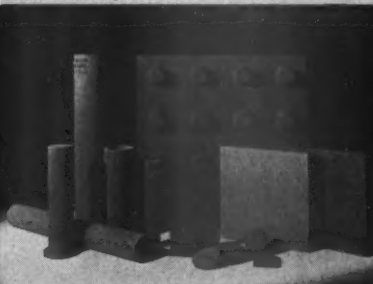
**SAW GUMMING WHEELS**—Available in vitrified or resinoid bond and several types of **ALUNDUM** abrasive to keep your rip, slasher and other saws in top-notch shape.

**KNIFE GRINDING WHEELS**—The cool, fast cutting action of the sensational 32 **ALUNDUM** abrasive is making it a favorite for all kinds of knife sharpening jobs.

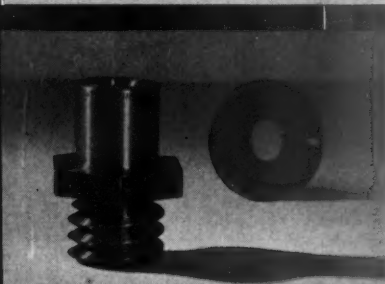
**ROLL GRINDING WHEELS**—Wheels of **CRYSTOLON** abrasive in vitrified, shellac and resinoid bonds to meet the requirements of all types of paper mill rolls.



**REFRACTORIES**—High temperature **CRYSTOLON BRICK** save money in boiler settings because of their long life, resistance to slag penetration and to abrasion.



**POROUS MEDIUMS**—Filter plates and diffuser tubes of carefully controlled permeability. Made of fused alumina (**ALUNDUM**), they combine strength and chemical stability.



**DEBARKING NOZZLES**—Made of Norton Boron Carbide (trademarked **NORBIDE**), the hardest material made by man, their life is many times that of other nozzles.

**OTHER NORTON PRODUCTS** for the **PULP and PAPER INDUSTRY**: **ALUNDUM** Laboratory Ware; **ALUNDUM** Non-slip Tiles, Treads and Aggregates; **CRYSTOLON** Axe and Knife Stones; Abrasive Papers and Cloth (Products of Behr-Manning Division)

**NORTON COMPANY, WORCESTER, MASS. • NORTON COMPANY OF CANADA, LTD., HAMILTON, ONT.**



# An Improved System for — — CHIP STORAGE AND HANDLING

By A. T. Hurter,  
Consulting Engineer, Montreal

The old conventional design chip bins were usually located over the digesters. Such an arrangement required an expensive type of superstructure as it resulted in a relatively slender building with heavy loads concentrated on the top. There was also a disadvantage that storage capacity was more or less limited by the spacing of the digesters. Moreover, the shape of such chip bins over the digesters resulted in dead storage pockets of chips which often gave rise to corrosion troubles, and air, steam jets or vibrators were required to release the chips for filling the digesters.

Recent trends in the design of chip storage with arrangement for blending and

reclaiming chips favor a structure on the ground level in order to increase not only the storage capacity but also to reduce the construction cost. Such chip storage structures on the ground level permit greater flexibility as their capacity may be readily increased and as they may be located in such a manner as to permit expansion of the mill without interference. The larger storage capacities that can be obtained by the use of ground level chip storage also permit reduction of wood handling and wood preparing operations to one or two shifts. The design of ground level storage bins is not complex and they may, in many cases, be built entirely of wood.

A few years ago, Stadler, Hurter & Co.

developed a new type of building with automatic mechanical equipment of special design for the rapid handling of large volumes of chips to and from storage on standard conveying equipment. A similar bin can also be applied to handle and store hogged fuel and bark.

The design was developed to meet the following conditions.

1. Elimination of cumbersome reclaiming by operating gates or other expensive mechanical devices requiring full time attendance of an operator.

2. Regulated, continuous and even flow of chips from chip bins to allow minimum or definitely set filling time of digesters.

3. Elimination of air, steam jets or vibra-

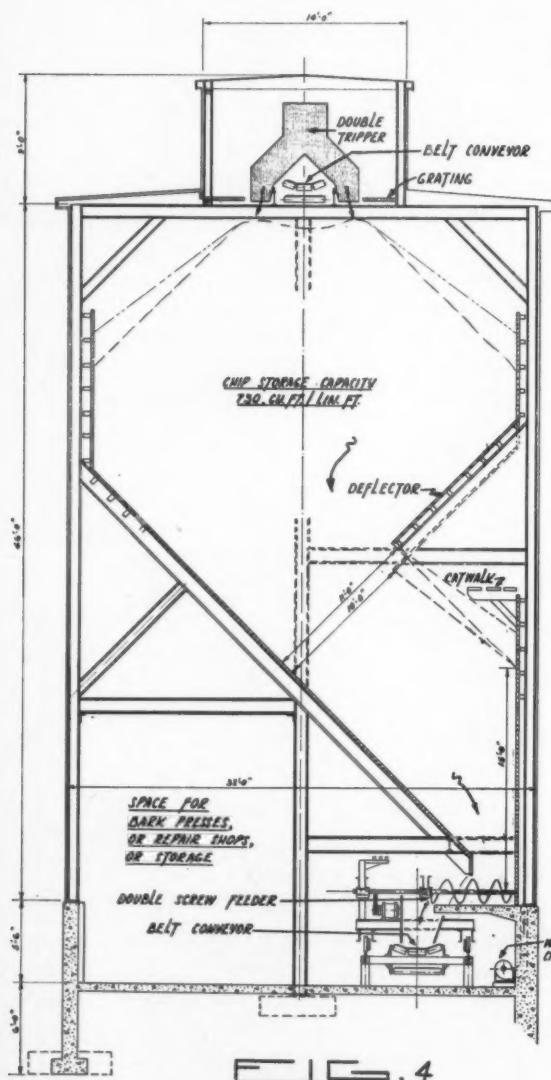


FIG. 4

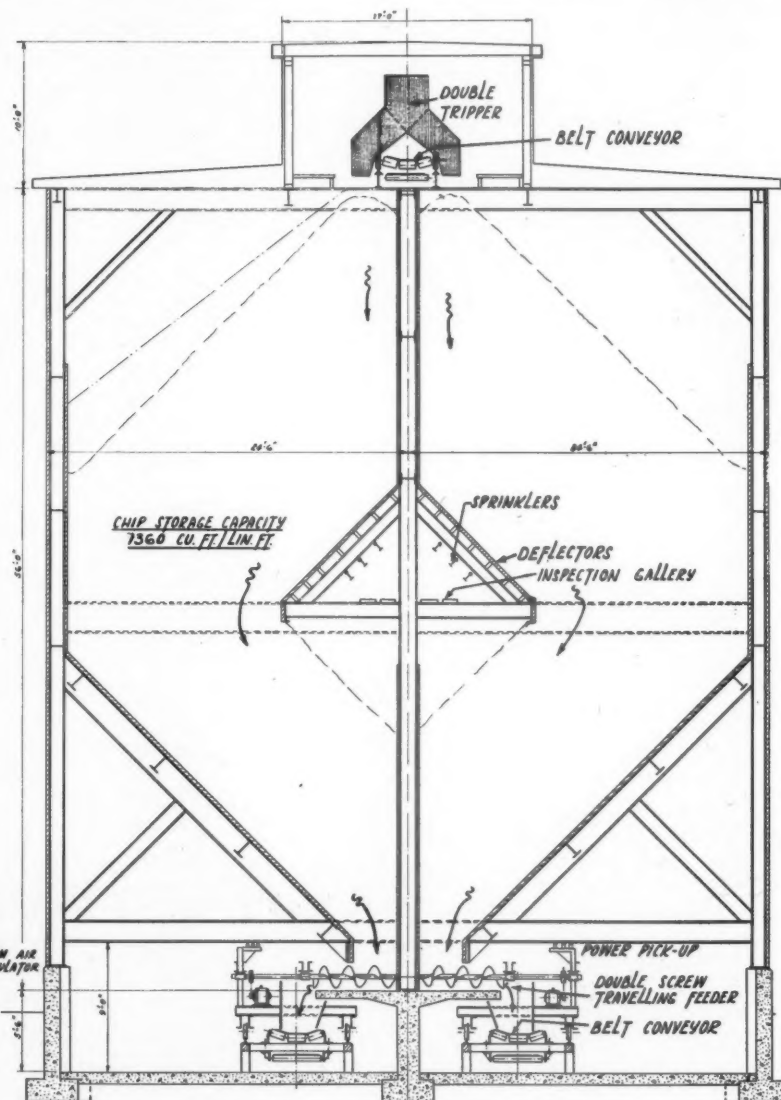


FIG. 5



## NEW **FULTON PRESS** PROFITABLY DE-WATERS MILL REFUSE IN ONE CONTINUOUS OPERATION

Yesterday that pile of soggy bark, knots and screenings was a useless liability. Today it's an asset.

This remarkable new machine (1) DE-WATERS and (2) REDUCES all kinds of mill refuse in one low-cost operation.

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SAINT LOUIS, U. S. A.

tors to loosen up chips arching in storage.

4. Adequate sprinkler or fire protection of chip bins and chips.

5. No dead chip storage pockets and allowance for complete turnover of all chips in a relatively short period.

6. Provision for segregating wood species in the bins.

7. Blending of chips to give uniform quality.

8. Relatively balanced structural design with maximum storage in a relatively small area.

All these conditions were met by the typical designs shown in Figs. 4, 5 and 6.

Loading of the chip storage bin is accomplished by an overhead belt conveyor with a reversible travelling tripper usually operating back and forth distributing chips evenly over the full length of the chip bin for blending purposes. The tripper can be provided with stops or dogs if the chip bin structure is subdivided into individual compartments for various species. In such cases, the tripper works automatically over the length of the individual compartment only.

Dead chip pockets are avoided and a continuous flow of chips from the bins is accomplished in three ways. The bins are provided with deflectors which limit the chip depth to a point at which packing cannot occur; the bins are designed so that the chips are always in contact with one vertical wall which does not serve as an adequate base for the formation of the chip arch; and the bins are provided with a wide discharge opening. Air or steam jets are thus not required to loosen the chips, as due to the design of the bins the chips do not pack but flow freely.

For fire protection, sprinklers can be mounted not only at the top of the chip bin but also underneath the deflector as shown in Fig. 5. Thus, in the event of fire, the center of the chip storage can be sprayed with water as well as the top. An inspection gallery is usually also provided under the deflector. The reclaiming of chips from the bin is performed by means of a patented travelling twin screw discharge feeder as shown in Figs. 4, 5 and 6, and detailed in Figs. 1, 2 and 3.

This travelling feeder operates in conjunction with a chip belt conveyor to provide rapid, trouble-free handling of chips from storage to digester. Chips are withdrawn at a uniform rate through a continuous slot at the bottom of the bin by the positive action of two counter rotating parallel screw feeders which are mounted on a travelling carriage. The carriage rides on rails positioned astride over a conveyor belt which conveys the chips to the digesters. The twin screw feeder automatically travels back and forth usually for the full length of the storage chip bin drawing chips horizontally from the chip bin hopper bottom and conveying them a distance of about 7 feet to the discharge point directly over the belt conveyor below. The chips then fall through the discharge chute to the conveyor belt (The twin screw chip reclaiming device is made by Improved Paper Machinery Co., Nashua, N. H.).

This mechanism provides certain advantages over more conventional methods

(Continued on page 69)

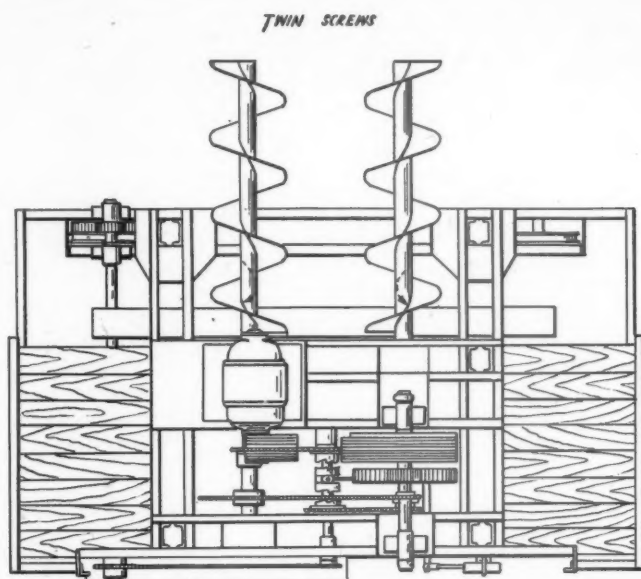


FIG. 1

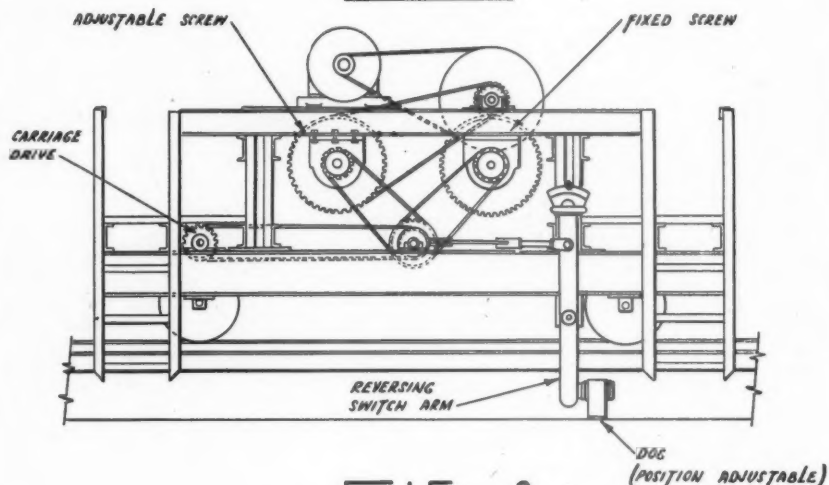


FIG. 2

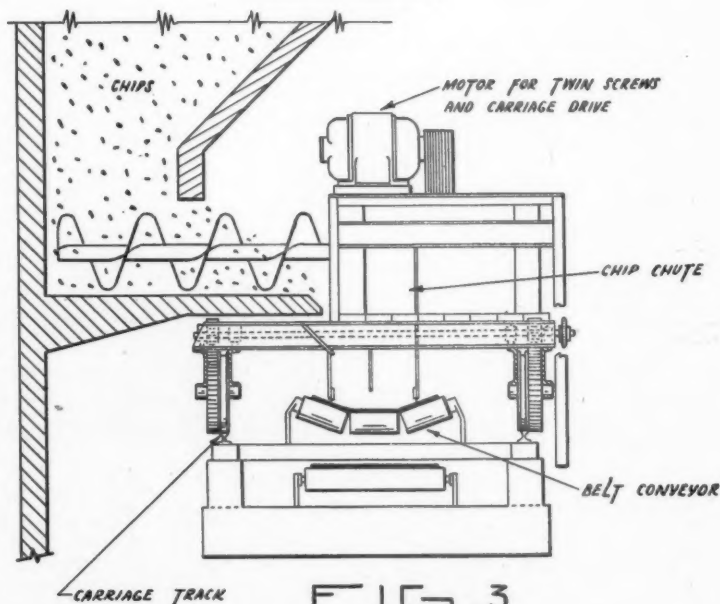


FIG. 3



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**fastness** superior fastness to light

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( NEWS ITEM: It is estimated that 90 million noiseless paper pop corn bags are used annually in New York City movie houses. )

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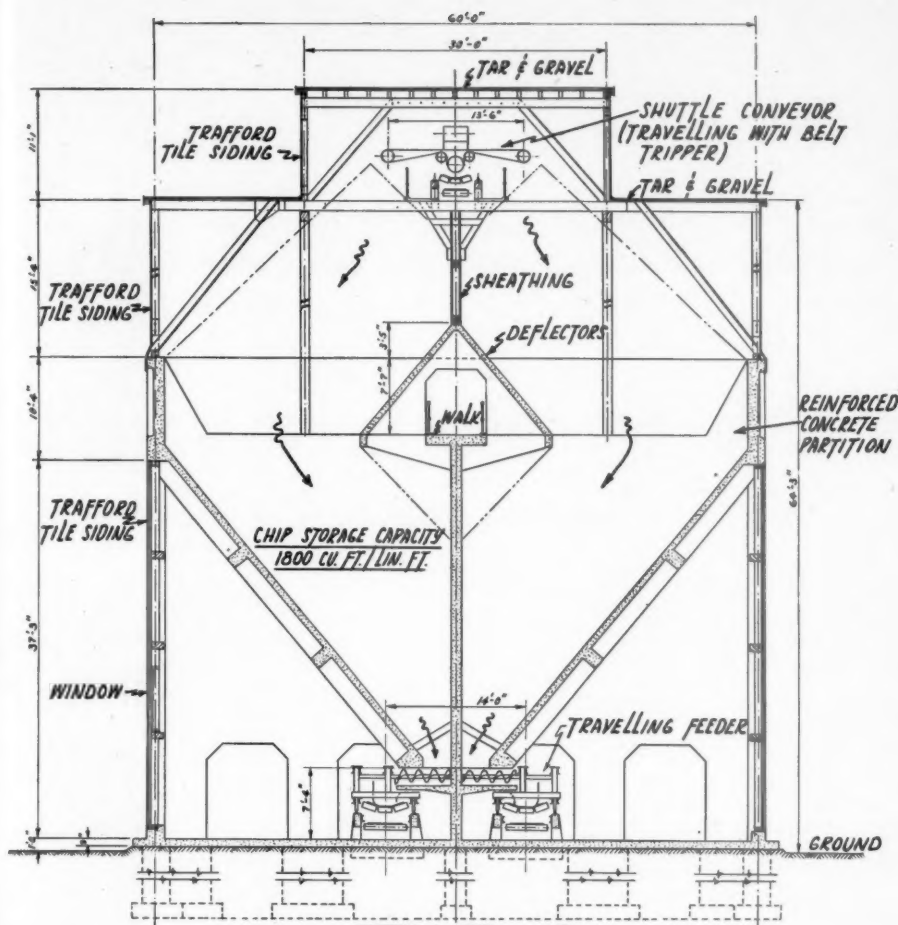
Additional capacity in Metals Fabrication is now available through conversion of facilities formerly devoted to the building of ships.

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**FIG. 6**

of discharging chip bins and conveying the chips to the digesters.

First, the revolving and worming action of the two parallel screws, rotating in opposite directions, loosens any chips near the bottom of the storage bin. The positive movement of the screw flights pulls the chips out of the hopper to discharge uniformly on the belt conveyor beneath the supporting carriage.

Second, the carriage of the screw feeder travels in both directions for the full length of the storage bin thus providing a uniform discharge of chips from all parts of the bin. When the travelling feeder reaches the limit of its travel at one end of the bin, the dog set on the rail activates a reversing mechanism on the carriage to auto-

matically reverse the travel of the carriage. In cases where the wood chips are segregated in individual compartments according to wood species, the dogs activating the reversing mechanism of the screw feeder carriage may be relocated so that the screw feeder will discharge chips from one compartment only.

To provide the discharge of chips required for smooth operation of this type of feeder, there is a continuous opening about three feet wide at the bottom of the chip bin for the full length of the bin. About 20 inches below this opening, there is a narrow horizontal platform cantilevered off the straight wall of the chip bin and projecting several feet beyond the end of the opening in the bottom of

the bin. This platform supports chips lying at their nominal angle of repose below the bin opening. Above the platform and below the bin is a space just sufficient to permit passage of the twin shafts and their screw flights.

One of these twin screw discharge feeders can handle as much as 500 cubic feet of wood chips per minute. The carriage and the screw shafts are driven by a 5 H.P. adjustable speed motor and the unit travels at a minimum speed of 20 feet per minute. The rate of discharge of chips can be increased or decreased by adjusting the spacing between the twin screw shafts on the carriage. Special provision is made on the carriage for adjusting the distance between the screws without affecting any alteration to the drive.

As shown on Figs. 5 and 6, some chip bins have two sections with a vertical dividing wall in the middle. This type, if large, usually requires two twin screw discharge feeders, one on each side. In such cases, they can be operated alternately or at the same time if desired. Most recent installations of this type of chip bin and reclaiming mechanism have all conveyor trippers and twin screw discharge feeders operated by remote control from the digester house. No operator is required within the chip bins, except nominal inspections by the maintenance crew.

In locations where climatic conditions are severe, air circulation along and through outside walls of the chip storage bins can be provided to prevent freezing of the chips and assure trouble-free operation. Such air ducts are shown on Figs. 4 and 5 illustrating bins constructed of steel and wood, but not in the case of Fig. 6 illustrating a reinforced concrete and wood structure.

Such equipment has been installed at Brompton Pulp & Paper Co., Red Rock, Ont., Abitibi Power Co., Sturgeon Falls, Ont., and LongLac Pulp and Paper Co., Terrace Bay, Ont. The new Columbia Cellulose Co. pulp mill (Celanese Corp. of America), at Watson Island, B.C., will use a bin of the double compartment type, and the Coosa, Ala., mill has ordered the twin screw discharge feeders for their new plant.

A. P. McLEAN and G. FEINAIGLE, of Australian Paper Manufacturers, Ltd., have arrived in England and will remain there until the end of the year.



## One of the Men behind Eastwood Wires

Harry Smith

"Stops the Music"

The ceaseless pounding of a giant wire loom may be nerve-wracking to some, but to Harry Smith it is harmonious accompaniment to his life's work. Here he has just stopped his loom to change the selvage wires at start of another Fourdrinier wire.

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The purchase of timberlands as a measure of protection for future operations has increased United States pulp company holdings by one-third during the last four years, the APPA reports.

## BIGGEST SHOW IN SOUTHEAST

### Round Table on Power Saws and Skidding



VIEWS AT RALEIGH LOGGING SHOW (L. to R.): 1, After the Oliver Corp.'s "Heller" logger brought this tree-length log to the brow, it was taken up by Oliver Cletrac equipped with Carco winch. 2, Oliver Cletrac with Carco winch and log cart brings one up from gully. 3, Foreview of the "Heller." 4, Demonstration of McCulloch power saw in trimming.

5, Kenneth Trowbridge, in charge of woodlands operations for the North Carolina Pulp Co., Plymouth, N. C., was on forum panel with George Carr, of Carco; M. K. Edge, Fayetteville logger; Tom Busch, I. P. Co.; and others. 6, Small Detroit tractor with Detroit arch was interesting part of show. 7, This hydraulic crane created considerable interest. 8, Disston not only demonstrated power saws but brought along its power saw truck with several thousand dollars worth of parts, and maintenance and sharpening equipment. Don Neilson was in charge.

Pulp and paper woodlands experts starred in the forum discussion which was the climax of the Logging Show, believed to be the largest demonstration ever held in the Southeast, which took place Oct. 25-26 under auspices of the forestry division of North Carolina State College, the Virginia-Carolinas Section of the Forest Products Research Society, and the U. S. Southeastern Forest Experiment Station. The site was five miles west of Raleigh, N. C., and the discussion took place on the campus of the State College.

An experts' panel was comprised of

Kenneth Trowbridge, woodlands manager for the North Carolina Pulp and Paper Co., Brunswick, Ga.; Thomas Busch, assistant woodlands manager for International Paper Co., Georgetown, S. C.; W. McKay, Crossett Industries; and M. K. Edge, sawtimber logger from Fayetteville, N. C. Prof. Roy M. Carter, State College, was moderator.

Logging demonstrations were identical on both the 25th and 26th and took place on the college's animal husbandry farm five miles west of Raleigh. Trees for harvesting were chosen by foresters of the N. C. Agricultural Extension Service.

Trees of sawtimber size were marked with two spots of yellow, and those for pulpwood with three spots. The total marked area was seven and one-quarter acres. The timber was mainly short leaf and loblolly pine with a small percentage of sweet gum and yellow poplar. The pines of pulpwood and sawtimber size were between 40 and 50 years old, with scattered pines as old as 60 years. In marking trees for the show, officials practiced good forestry. The marked trees showed surface knots or branch stubs for the entire length, or slow growth rate, or crook and sweep which would cause



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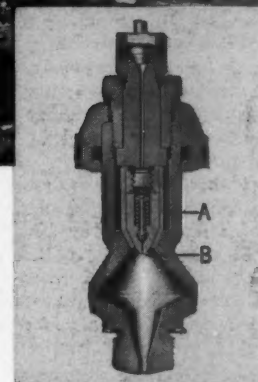
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December 1949

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considerable mill waste. Some were marked for the show, too, because of bad spacing.

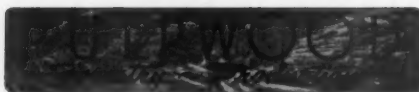
The outdoor program consisted of five different logging units which made a rather complete picture from felling through tractor skidding with snatch chokers or sulkies and arches with crawler or wheel tractors to either a portable sawmill or truck loading area. Equipment shown included power saws (McCulloch, Disston, Poulan, Mall, Lombard, I.E.L., and Lowther); tractors (International, Allis-Chalmers, Detroit Tractor, Oliver); arches, log carts, winches (Carco); loaders (Michigan Crane, Hydrocrane, and Heller Winch Loader by Oliver); power units (Buda, International, and General Motors); sawmills (Lane, Turner, Meadows, Jackson Lumber Harvester); trimmers and edgers (R. J. Tower); brush wood chipper (Fitchburg Mfg. Co.); and trucks and trailers (Mack-International, Birmingham, Chevrolet, Baumnis-Truckstell and Dearborn).

Burden of the demonstration fell largely upon Southeastern dealers such as the N. C. Equipment Corp., and E. F. Craven Co.—but factory representatives were on deck from several manufacturers such as Pacific Car & Foundry Co. (Carco), Oliver, Disston, McCulloch and two or three others. Attendance was about 800 for the two days. When the results of the show have been assayed by time and investigation, the State College—whose new forestry building should be up in 1950—will determine whether to make it an annual affair. Should the answer be yes, the site of the show will be rotated through several Southeastern cities. Chances for an annual or bi-annual meeting seemed good enough.

The forum started properly enough with power saws, but unfortunately did not get very far into the next step of skidding before it ran afoul of 10 p.m. which was the deadline.

It was plain that power saws were going to stage a come-back and adjust themselves to the post-war labor market. Said Ken Trowbridge of the panel: "After all, 95% of power saw failure during the war was due not to the saw but the men using it. This is true, actually, in all types of logging equipment. Sometimes I think that the need is for better training programs. We have to face it that the only answer to higher wages is mechanization. We get our wood from many loggers over a wide area and it is safe to say that only a very small percentage of these operations are mechanized in any real way."

George Carr of Pacific Car & Foundry Co., Renton, Wash., pointed out to the undergraduate foresters present that in a logging show of this type all the manufacturer was doing was setting the equipment before the audience. "The operators are not loggers," he said, "but they are factory men. This is a point to remember when you see a logging show. The logger himself must use his imagination and apply it in his mind to his own problem." Someone suggested from the floor that perhaps all logging show equipment should be operated by real loggers.



## — MEETINGS —

Western Forestry & Conservation Assn. — Multnomah Hotel, Portland, Ore. ....Dec. 7-10

So. Pulpwood Conservation Assoc. .... Biltmore Hotel, Atlanta, Ga. .... Feb. 15

Tom Busch, on the panel from International Paper, said that it was too bad that the first query of "prospects" at a logging show was the cost of the equipment, and he expressed surprise that the manufacturers themselves were sensitive to the price tag. "But," said this woodlands man for the No. 1 paper manufacturer in North America, "equipment should never be judged by first cost. It should be considered, as to cost, in cords of pulpwood, or whatever you are making." As an example he told of a time when he had wanted to move 3,000 cords a distance of half a mile and fast, and load them on barges. The cost looked like \$1.40 a cord. Mechanical means were considered and the cost was brought down to 50 cents a cord and this included amortization on equipment.

Also, Mr. Busch stated what he believed to be an axiom in the South: "Equipment must fit the small wood lot owner or it won't fit the large operator."

A farmer from the floor stated his conviction that logging mechanization in the South is about where farm mechanization stood 25 years ago. "We found out one thing important to you folks. A tractor operated by a farm owner or his son would last twice as long as one operated by a tenant farmer or a hired hand that didn't own the machine."

This led Mr. Trowbridge and Mr. Carr to recall the answer to this problem by Weyerhaeuser Timber Co. on the west coast. Operators of chain saws and tractors, they said, were shown that the machine helped them to increase income and therefore deserved their care and maintenance. It was admitted that the Southeast area was worst of any in the U. S. in equipment failures due to faulty maintenance and operation.

Walton Smith, of the Southeast Forest Experiment Station, brought the talk back to power saws by relating trouble with split trees and leaners. Mr. Statton of McCulloch stated that the undercut was the key to the problem. "The tree has to be judged individually," he said. "Remember that power saws are being used by men who have never cut down a tree with an axe or a crosscut. A fellow who has used a crosscut can judge a tree and use a power saw successfully."

Don Nielsen of Disston agreed with this and recalled how one day it dawned on him that he had tested and used a power saw for a long time, but had never cut down a tree by any method. He took steps to correct this at once. Mr. Nielsen diagrammed a good method of triangular cut for avoiding splits. He also gave a number of valuable pointers. Three of them: take a look at the chain method of holding a split, but this may be unnecessary if you learn to judge the tree—and when a logger hears the first crack he should keep going, because the saw will cut faster than the tree will split.

The subject of skidding resolved into a discussion of tree length vs. log length, and Mr. Trowbridge resolved this by stating that the important factor was the economic factor, the log load. Mr. Edge said, "I agree with that. We like the longer lengths or the whole tree by skids, but that just happens to be our conditions."

Mr. Trowbridge said that there was also a forestry problem. "Wherever I can," he said, "I insist on tractors and log cars—to tear up the soil and keep down the hardwoods to get a soil for pine reforestation, so we go tree length where we can."

The idea of scarifying the soil shocked one or two of the undergraduate forestry students and so Mr. Trowbridge went to some length to explain why it was good practice in his specific instance, and how the economic factor must be considered. "Of course," he said, "the size of the land has a lot to do with it. And another reason I like an arch behind the tractor is that then the load is on wheels. You can't overload the tractor and you can't shock it."

Scarification of tree land by tractor and accessories was brought into question where gumbo soil is involved.

**PARTICIPANTS IN NATIONAL FORESTRY MEET at Seattle (l. to r.):** FRED BRUNDAGE, Chief Forester, Harbor Plywood Corp., and ex-Coast wartime log administrator; JOHN M. CAMP, Camp Mfg. Co., Franklin, Va.; ROSS WILLIAMS, formerly Regional Forester of S.C.S. region 5, and recently Dean of Forestry, Montana Univ., Missoula; R. A. BRANDES, Forester, Crown Zellerbach Corp., Port Angeles, Wash.; ROBERT W. DOERR, Forester, Abitibi Power & Paper Co., Sault Ste. Marie, Ont.





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# NATIONAL FOREST MEETING

## Aerial Seeding and Other Highlights



AT FORESTRY MEETING (l. to r.): T. D. STEVENS, Head of Forestry, Alabama Polytechnic Institute, Auburn, Ala.; W. C. PERCIVAL, Forestry Head, West Virginia Univ., Morgantown, W. Va.; WM. H. PRICE, Manager, Shasta Forests Co., Redding, Calif.; LEWIS J. FREEDMAN, Woodland and Timber Procurement Manager, Penobscot Chemical Fibre Co., Oldtown, Me.; LLOYD P. BLACKWELL, Forestry Head, Louisiana Polytechnic Institute, Ruston, La.

The 1949 annual national meeting of Society of American Foresters at Seattle, Wash., in October was acclaimed by many of the 800 attending members as the most successful in the organization's half century existence.

Under presidency of Clyde S. Martin, chief forester of Weyerhaeuser Timber Co., Tacoma, Wash., the first private-industry president of S.A.F., the session featured the progressive forestry and forest products industries operations of Pacific Northwest. Field trips included pulp and paper mills and a 150-mile trip, to operations of the White River division of Weyerhaeuser Timber Co., from which timber has been harvested over 50 years. Men outside the Douglas fir region were awed by the natural restocking of clear-cut areas from which fire has been excluded following slash burning. There was also a 130-mile tour through Seattle's municipal watershed, an outstanding example of multiple use forestry. Under management for 25 years, this watershed furnishing excellent water to approximately a half-million people, contains examples of sustained-yield harvesting by logging, and both natural and artificial regeneration.

One of the talks, on "Aerial Seeding" was given by George H. Schroeder, forester in charge of artificial forest station activities, Crown Zellerbach Corp. He pointed out more than two million acres of forest lands in the Douglas fir region

are in need of stocking and normally this would take 20 to 30 years. Present cost of \$20 per acre for this project would be beyond financial ability of owners involved. According to Mr. Schroeder, several acres per minute, or 1500 to 2,000 acres per day can be seeded by one air machine. Cost estimates are lower than \$1 per acre by responsible companies. This year's experimental helicopter work in the Douglas fir region involves 15 to 20,000 acres.

Advantages pointed out for helicopter over fixed-wing aircraft include the following: More even dissemination of rodent bait and/or seed, as the helicopter can maintain a uniformly constant, slow flight speed, and time is saved on the job since the helicopter can be set down to fill hoppers on the project area. Rodent control and the securing of suitable seed was emphasized. Sodium fluoroacetate (Compound No. 1080) as rodent control bait has been found particularly effective. It can be carried in wheat.

P. A. Thompson, regional forester, U. S. Forest Service, San Francisco, reviewing developments in fire control field, mentioned effective mobile and portable radio equipment, more effective uses of water, utilizing tanker trucks and tractor, and bulldozers will continue to be the "work horse" of the fire line, but improvements in uses and techniques are desirable. The use of aerial transportation has been found

to be one of the most important developments of recent years, in fact he predicts that use of helicopters will replace smoke jumpers within five years. Forest-fire research is under-staffed, but chemical techniques of making fire-break lanes, effective use of water with fog nozzles and other tools have met with progress.

Dean Paul M. Dunn, School of Forestry, Oregon State College, Corvallis, Ore., discussed, "Progress under the Cooperative Sustained-Yield Laws". To date the U. S. Forest Service has established one cooperative sustained yield unit and two federal units. This cooperative unit at Shelton, Wash., with Simpson Logging Co., has safeguarded public interests in the communities involved. Eighty percent of the forest products under this contract must be processed locally. After three years of operation it is felt in the participating communities that the program is sound, he said.

A paper on "New Developments in the Forest Products Industries" was presented by Dr. O. Harry Schrader, Jr., College of Forestry, University of Washington. He cited Weyerhaeuser Timber Co., Crossett Industries and three ownerships operating in Cloquet, Minn., as examples of integrated utilization. Dr. Schrader pointed out that this development of multiple-use industry, especially in areas from which old-growth of prime species is cut out, has effectively stabilized previously diminishing communities.

A. B. Recknagel, forester, St. Regis Paper Co., N.Y.C., mentioned chemiground wood as a likely possible expansion for utilization. This process involves chemically treating wood before it is ground. He says the process development has practically been completed at New York State College of Forestry at Syracuse.

K. B. Pomeroy, Southeastern Forest Experiment Station, Franklin, Va., presented a paper entitled, "Hardwood versus Loblolly Pine", which paper was co-authored by N. T. Barron, Camp Manufacturing Co. of Franklin, Va. Consideration was given to the work carried out on Camp lands for controlling undesirable hardwoods by discing, bulldozing, girdling and poisoning to facilitate restocking the area with loblolly pine. Burning and scarification were used to prepare ground pine seed. Chemicals were used for controlling weeds. With regeneration of the hardwoods, their control was readily achieved by use of Ammate, oil, 2.4D or 2.45T.

T. B. Blair, regional forester, Soil Conservation Service, Portland, Ore., stated that soil is the most important ecological factor in growing trees. He said that Crown Zellerbach Corp. and Weyerhaeuser Timber Co. are currently collecting soil samples with view to determining forest-crop factors.

A. K. DEXTER, timberlands manager for Southern Kraft Division, International Paper Company, at Canton, Miss., was elected president of the Mississippi Forestry and Chemurgic Assn. He succeeds P. H. Harris, of Masonite Co., Laurel, Miss.

ATTENDING FORESTRY SESSIONS (l. to r.): IRVING H. ISENBERG, Institute of Paper Chemistry, Appleton, Wis.; GEORGE GARRATT, Dean of Forestry, Yale, New Haven, Conn.; A. B. RECKNAGEL, Forester, St. Regis Paper Co., Syracuse, N. Y.; BERNIE L. ORELL, State Forester, Olympia, Wash.; N. T. BARRON, Chief Forester, Camp Mfg. Co., Franklin, Va.



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# ENGINEERS CONCLAVE

## PLANT TOURS ARE HIGH LIGHT

It was a little late for the full brilliance of a New England autumn. But there were still great flashes of flame-like color in the woods. And as the engineers of the industry's technical association wound up their fourth annual conference and piled into red-and-cream buses for the field trips to Worcester, Walpole, and Lynn, they caught in their noses the punkin' frost tang and saw the blue smoke of last summer's leaves hanging over the sun.

It was a day to bring back memories of youth—and maybe that was why the engineers had such a good time. That, and a successful conference behind them, and the hospitality of four Massachusetts towns whose roots are deep in the pulp and paper industry.

The buses left from Boston's Hotel Statler where the three-day sessions were held. Slightly less than a hundred embarked for Worcester, some fewer to Walpole, and those interested in the specialized work of General Electric's "River Works" headed for Lynn.

Paper mills, too, were open for visitors during the week of Oct. 31. Among them: A. L. Adams Paper Co., Baldwinville; Stony Brook Paper Co., Waltham; Bird & Son, South Walpole; Champion Interna-



**SCENES FROM ENGINEERS' MEETING:** At extreme left, Sparks fly up as a dryer for a fourdrinier is being poured at Rice Barton plant. Top row, l. to r., Charles and Peter Barton; former is Vice President and General Manager of Rice Barton organization. Some of the engineers leaving pulpstone assembly plant of Norton Co. Bottom row, l. to r., Engineers entering new offices of Riley Stoker; "Bumps" Hemphill of Johns-Manville and M. S. Fogarty of Sutherland Paper Co. look over program.

tional, Lawrence; Doeskin Products, Mt. Tom and Wheelwright; Erving Paper Mills, Erving; Falulah Paper Co., Fitchburg; Robert Gair, Inc., Haverhill and Natick; The Merrimac Paper Co., Inc., Lawrence; St. Regis, East Pepperell; Tileston and Hollingsworth, Hyde Park, Boston.

### At Riley and Norton Plants

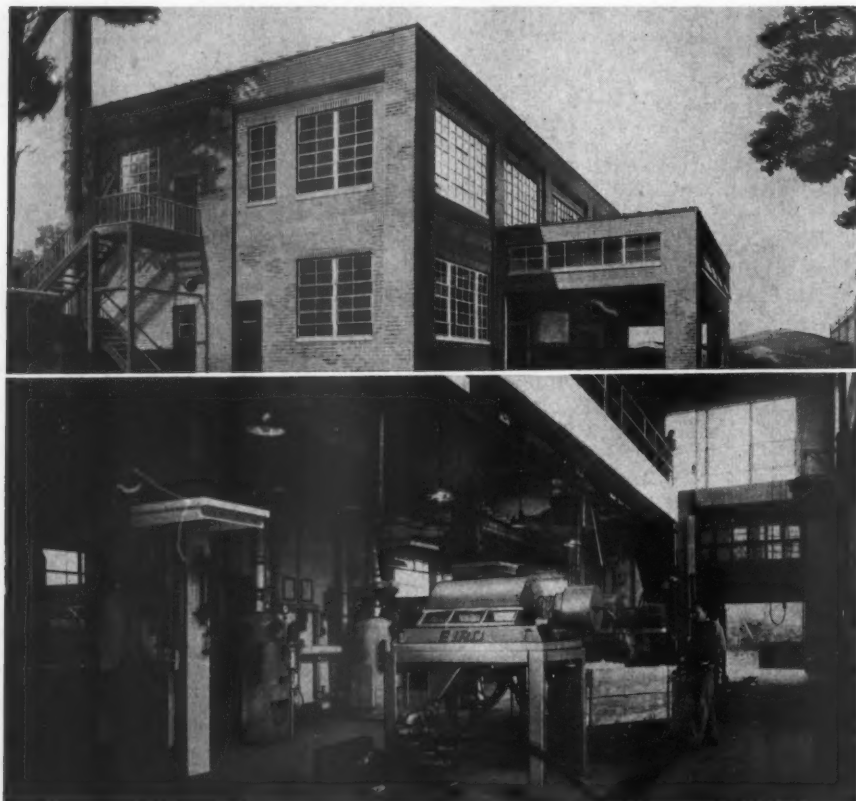
First stop on the Worcester tour was at Riley Stoker Corp., where the engineer guests were welcomed by L. E. Griffith, president, into the new Riley offices and then were shown a motion picture illustrating the internal workings of a typical modern industrial boiler. From here the guests were transported to the Norton Co.'s huge plant to be welcomed in the assembly hall by William R. Moore, vice president, who is also in charge of pulpstone sales. He gave a brief historical talk on Norton's segmental pulpstones, saying that the first one was tested in 1920 in the Corinth laboratory of the International Paper mill. The first commercial stone went into use in 1926 at Three Rivers, International Paper, Great Northern, and other mills and proved a success from the beginning.

Engineers were then taken into the company cafeteria for luncheon by J. H. Perry of the pulpstone sales department. After luncheon, the group visited the Pulpstone Division and to witness pulpstone assembly. Those who wished were taken to the tunnel kilns where the segments are fired, and power men got a look at the Norton power plant.

### Rice Barton Shops Tour

Following this, the buses led to the famed plant of Rice Barton Corp., where Charles S. Barton, vice president and general manager, took charge. In the vast foundry of Rice Barton the engineers were privileged to see poured a dryer for a machine going into a Southern mill. There followed a tour of the Rice Barton machine shops which feature modern equipment for paper machinery with each of the larger machine tools labeled with its

**VISITED BY ENGINEERS:** Top, new Bird Machine Co. Research and Development Center at South Walpole, Mass. Bottom, main testing floor at Bird Research Center.



name in neon lights. Here were seen the application of high speed modern equipment to custom-built know-how of paper machine building that goes through three generations.

The engineers also saw transparent working models of some of the products of the Rice Barton Research Corp., including the new Dyno Pulper and Dyno Finer, and a talk on the Dyno Peller which is the heart of all Dyno machines. On hand to welcome the engineers were George Barton, president; Peter Barton; Lester M. Start, Sr., sales engineer, and others.

#### Lodding Plant Visit

At the Lodding Engineering Corp. the engineers were welcomed by W. C. Lodding, president, with W. E. Greene, F. H. Goyette, D. J. Milliken, H. C. Burdett, C. S. Connington and F. P. Thornton. Here the engineers got an education in doctors engineered by Lodding, as well as such items as the Lodding hydraulic oscillating system. Here, too, was a behind-the-scenes look at some of the causes for the importance of doctoring paper machine rolls properly and of reasons for improvements shown in the industry in recent years.

Sponsoring companies were then hosts to the engineers at the venerable and exclusive Worcester Club for cocktails before taking the special bus for the return to Boston.

#### Bird Machine Co. Tour

Pilgrims who took the route to Walpole had an equally interesting and varied fare of sightseeing. A large crowd traveled directly from Boston to Bird Machine Co. where they were met by Fritz Becker, president, and Frank F. Frothingham, vice president, to be shown through the extensive Bird plant to see the manufacture of the Bird saveall, consistency regulators, centrifiners, shower pipes, screens, Jonsen screens, vibrator screens, Vickery doctors, and Dirtecs, all of which have had an important effect on lessening costs and improving production in the industry. Also, some pioneer Bird equipment was exhibited for comparison with modern machinery for like purposes.

Luncheon for those who took the Walpole trip was served in Lafayette Inn, a few miles from the Bird plant. Here executives of the four host plants stood up for identification and a bow.

#### Foxboro, Draper and Bird & Son

Here the group separated into those visiting the Foxboro factory and those visiting the paper mill of Bird & Son and the Draper Brothers felt mill at Canton. H. O. Ehrisman and Pat Yunker were among the Foxboro men who greeted the technical mill men at the plant in the delightful old New England town of the same name which was founded in the third year of the Revolutionary War. At the Foxboro plant the guests received a brief course in instrumentation and its manufactured units, attending the special design engineering department, the machine shop, the pre-production department, the sub-assembly and other divisions of the huge plant that takes up 200,000 square feet of working space in addition to spacious grounds.



W. E. GREENE, of New York City, prominent in the equipment industry, was one of the hosts at Lodding Engineering Corp., for the Engineers' Meeting tour.

tion to spacious grounds.

At Draper Brothers, where Ralph Briggs and others well known to the industry greeted the travelers, they saw the treatment of raw supply for felts and the intricacies of weaving this most important and essential element to the manufacture of paper. The conclusion of the tour was at the mill of Bird & Son, one of the best known mills in the New England area.

The Fourth Engineering Conference preceded these mill tours. Representatives of independent publications of the industry are now barred from Engineers' meetings insofar as publication and complete coverage of the papers are concerned. As for attendance, Albert Bachmann, president, announced it reached 500. The general session opened Oct. 31 under the chair-

manship of George Pringle, opened to lesser numbers—but the attendance grew markedly as the convention proceeded. Mr. Pringle announced that the 1950 meeting would be held at Cincinnati, Ohio.

Highlights of the conference were the sessions on mill design and economic aspects, headed by Alvin Johnson, consulting engineer; on engineering research and machine design piloted by P. H. Goldsmith, Pusey & Jones; on steam and power, chaired by Charles J. Sibler, West Virginia Pulp & Paper Co., and led off by a paper on waste heat recovery by D. K. Dean, Foster-Wheeler; on mill maintenance and materials, headed by William McIntosh, Jr., Southern Corp.

Also notable were the groups on steam and power with the discussion led by Frank Hutton, Babcock and Wilcox and featuring papers on steam turbines by J. C. Spahr, Westinghouse, and J. L. Kerr, General Electric. Traditionally, the drying and ventilating session was chaired by A. E. Montgomery, J. O. Ross Engineering. A highlight of the round-table sessions was the one on cylinder machine operation led by President Bachmann.

The otherwise dignified Engineers donned Indian head-dress for the annual cocktail party preceding the sponsor's dinner where Milton Jacobs, Chas. T. Main, Inc., was toastmaster.

## 25 YEARS WITH KVP John Wood's Advice on Success

John C. Wood (right), vice president in charge of manufacturing of Kalamazoo Vegetable Parchment Co., Parchment, Mich., this summer rounded out 25 years with that important 215-ton parchment, waxing and specialty mill.



Born in Springfield, Ill., he finished high school there, and then followed five years at the University of Michigan where he received his B.S.E. in 1922 and his master's in 1923. He majored in chemical engineering, with emphasis on evaporation.

It was there he became acquainted with the then Prof. Ralph A. Hayward, now president of KVP. Mr. Wood was an assistant in the university evaporation laboratory; and in time became an assistant to Mr. Hayward, under whom he had studied.

When asked what he recommended as steps to success, Mr. Wood said: "The more you know, the more chances and the better chances you have."

"To be of greatest service to your company, you must familiarize yourself with the broader aspects of its business," he added.

Mr. Wood went to Kalamazoo Paper Co., Kalamazoo, in 1912 and a year later rejoined Mr. Hayward at KVP, where

the latter had become manager. Mr. Wood started as a wax machine helper under the direction of such KVP old timers as Red Skinner, Ray Darling, Buck Bowen and Cobe Jager. After an apprenticeship in wax production, he moved to the engineering department, where he helped to make drawings for a new wax machine. Six months later he joined the maintenance department, helping install a maintenance cost system which has been in use until the present time.

After three years, Mr. Wood was ready to take on another cost problem, that of production, and worked with Amasa Brown for many years on this important analysis. He worked on special pricing for special papers such as the new carton sealing designs the company was starting to produce then.

In 1941 Mr. Wood succeeded Dwight Monaco as head of the printing division. A short time later, after the death of Bo Boldman, management placed Wood in charge of the wax division in addition to printing. By Dec., 1943, all converting in both mills came under his supervision, and in 1947, the board made him vice-president in charge of manufacturing.

He met his wife, Frances, in Kalamazoo, and they live at 222 Glendale Blvd. A daughter, Carolyn, 12, is a Parchment school student and made a name for herself by swimming across Gull Lake, which is familiar to so many papermakers.



# STORY OF CELLOPHANE

## Olin Industries to Build New Plant

E. I. du Pont de Nemours & Co. has licensed Olin Industries, Inc., to manufacture cellophane. It will use purified wood cellulose as a raw material. Unwilling to invest in a plant itself because of a government monopoly suit, Du Pont tried for a year to find a company able to invest the capital — estimated at a minimum of \$20,000,000 — necessary to enter the field on an economic basis.

The only other cellophane manufacturer, American Viscose Corp., has announced plans for expansion.

Du Pont agrees to furnish full technical information, assist in selection of a plant site to be announced later, and design and build an eight-machine plant with a capacity of 33,000,000 pounds of cellophane a year. Olin Industries is paying a fixed fee for design and construction, and for licenses.

John M. Olin, president of Olin Industries, said the entrance of his corporation into the cellophane business is a logical expansion of the company's operation into a field in which the Olin organization already has had wide experience.

With headquarters in East Alton, Ill., Olin Industries has acquired its experience in cellulose research and production through its divisions, Western Cartridge Co. at East Alton, and Winchester Repeating Arms Co. of New Haven, Conn. The Olin organization has made smokeless powder since during World War I.

Divisions and affiliates, besides Winchester and Western, include Western Brass Mills, East Alton; Electric Division and Bond Electric Corp., New Haven; Equitable Powder Co., East Alton; Egyptian Powder Co., Marion, Ill.; Liberty Powder Co., Mt. Braddock, Pa., and Columbia Powder Co., Tacoma, Wash.

### Story of Cellophane

Twenty-five years ago a new use for wood pulp was created in the United States. The first cellophane in America was made in 1924 at Buffalo, N. Y., by Du Pont Co. and uses for it are still increasing in the frozen foods and food markets. It uses 100,000 tons annually of specially prepared pulp.

The historic significance of that event in 1924 should certainly give pause to anyone who looks upon pulp and paper as a static industry. Who can say there cannot be another event like that which occurred in Buffalo?

The sum total of "know-how" then resided in a Swiss inventor, Dr. Jacques Edwin Brandenberger, and three instructor-operators from the original cellophane plant in France.

"As valves were turned and wheels

set in motion, excitement focused on the monster casting machine," recalls a DuPont historian. "Liquid cellulose, or viscose, began pumping in at one end, formed a solid sheet as it struck an acid bath and threaded through a long series of rollers to emerge, theoretically at least, rolled up smooth and shining clear at the "dry end" some 250 feet away.

"Theoretically was the word for it at the beginning. Cellophane is tricky stuff to make any day. And with a green crew the start-up was a triumph of confusion. At times the expert French instructors screamed in exasperation trying to make themselves understood through the lone Yankee interpreter."

Dr. Brandenberger, a textile chemist,

### DuPont and Its "Monopolies"

In connection with the government's "monopoly" suit against DuPont, here are some interesting facts:

DuPont is one of 9,000 companies in chemical and allied products industries, according to the Census Bureau, and has just 8% of the business.

In the paint field, Sherwin-Williams is bigger than DuPont and both fight for business among 1,200 competitors. American Viscose is larger than DuPont in viscose rayon; Celanese Corp. in acetate rayon, and there are about 15 other important companies in those fields. Union Carbide is bigger than DuPont in plastics; Allied Chemical in nitrogen products; Eastman Kodak in photographic film; Dow in chlorine products and also in insecticides.

made the first cellulose film continuously in Thionville, France, in 1908 and coined a name from the word cellulose and the French "diaphane", meaning transparent. He had hoped to laminate the film to tablecloths, but failing this, set out to find uses for the film itself. Its first use for wrapping came in 1912 and then the world war shut down the plant, but only for a short time. It was found suitable for eye pieces in gas masks and hundreds of millions were made for the armies.

After the war, France's biggest rayon firm, Comptoir des Textiles Artificiels, backed the inventor and formed La Cellophane Co. Then Du Pont brought North American rights to Comptoir's viscose rayon processes and before long built the plant in Buffalo, next door to the Du Pont Fibersilk Co.

The location was entirely logical since viscose rayon and cellophane are derived from wood pulp, the raw material, and are made by identical processes up to and including the point where the liquid viscose is formed into a solid, either as yarn or sheet, when extruded in an acid bath.

Wood pulp is especially important for cellophane. Cotton linter pulp is seldom, if ever used for the ordinary varieties of transparent film.

### Ross Opens New Plant In Montreal Suburb

Ross air systems, developed and manufactured by Ross Engineering, have played an important part in major industrial development in Canada and the United States, especially in the pulp and paper field, and for that reason the opening of Ross Engineering of Canada's new plant and office buildings at Ville LaSalle, outside Montreal, Oct. 7, was an event of widespread interest.

For several years the company's activities were largely confined to the pulp and paper industry and nearly all the Canadian mills are equipped with at least one or more types of Ross air systems. During the past decade, the opportunities for installation of air processing systems have been greatly enlarged, and Ross equipment is now to be found in many fields such as textiles, metal working as applies to automobiles, metal containers, toys, household appliances, plastics, ceramics and similar lines.

Although Ross Engineering of Canada, Ltd., is a Canadian corporation, with its own engineering and manufacturing facilities, it has access to all information, research and developments of J. O. Ross Engineering Corp. in the U. S. and Carrier-Ross Engineering Co., Ltd., in England.

F. W. Hooper is vice president and general manager of Ross Engineering of Canada.

### Lukens Steel Elects C. L. Huston, Jr. President

Robert W. Wolcott, president of Lukens Steel Co. since 1925, was named chairman of the board, and Charles Lukens Huston, Jr., (right) vice president and executive assistant to the president since Feb. 1948, was elected president by action of the Board, effective Oct. 30, which marked the beginning of the company's fiscal year, its 140th in the business of iron and steelmaking and fabricating.

Mr. Wolcott, a native of Sewickley, Pa., and an alumnus of Lehigh University, has been with Lukens since 1922. He became president in 1925.

Mr. Huston, a lineal descendant of Isaac Pennock, a founder of the business in 1810, came with Lukens in 1939, after 10 years with Armco. A native of Coatesville, he graduated from Princeton in 1928, and took graduate work at MIT.





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# NEW CONTROL DEVICES

## IN USE AT PACIFIC COAST MILLS

What is said to be the first automatic control device of its kind for sulfur flow to burners in a sulfite mill was described in a mill men's symposium on instrumentation held Oct. 25 at Tacoma, Wash., with about 90 Pacific Coast mill executives, technicians and engineers taking part. There were about a dozen equipment men at the almost exclusive mill men's meeting, sponsored by the Coast technical section.

Besides the mechanical device for automatic control of sulfur level rotary burners, which has been in use for some time at Crown Zellerbach Corp. in Camas, there was discussion of other devices developed by mill engineers, such as a Weyerhaeuser consistency control ahead of screens on both bleached and unbleached pulp, using a photoelectric cell. The use of a pH measuring unit and recorder-controller at Camas which regulates alum flow was discussed. Also a General Electric control specialist gave a valuable review of electronics applications which all instrument companies could study to advantage, and a paper was given on measurement and control of chlorine gas, a subject on which mill men have been eager to obtain more knowledge.

### Mr. Morgan Urges Political Interest

The instrument men had the afternoon for discussions at The Towers resort in South Tacoma, but the evening dinner was followed by listening to Howard W. Morgan, manager of the Pulp Division, Weyerhaeuser Timber Co. Along with anecdotes, of his interesting experiences in mills in Maine, he mixed a serious warning to his audience.

He told his audience that they represented the managerial and technical elements in industry which "were primarily responsible for the tremendous industrial development and success of our country" and he urged them "to interest yourselves in important public affairs so that you are



**INSTRUMENTATION SPEAKERS:** l. to r.—Brian Shera, Penn Salt Mfg. Co., of Wash., Tacoma, Wash.; Howard C. Hall, Asst. Tech. Supvr., Crown Zellerbach Corp., Camas; Forrest Williams, Shift Foreman, Sulfite Mill, Crown Z, Camas; H. T. Peterson, Instrument Engineer, Weyerhaeuser Timber Co., Longview, Wash.; Leo F. Maybach, Instrument Engineer, Crown Z., Camas, and S. H. White, Control Specialist for Northwestern Dist., General Electric Co., Seattle.

able to speak with intelligence and without bias to others regarding the many critical social and political problems that the before us today."

"We are constantly faced with the efforts of various groups or individuals who seek political power," said Mr. Morgan. "Too frequently the alternative suggested is the transferral of the power to some other individual or group. The country was founded on the theory of reposing the ultimate power in the hands of the voters. The thing that we should strive for is that the voters have a full and accurate understanding of issues involved when they exercise their power. As our country has grown larger it has become increasingly important that those in position to do so study the issues and discuss them with their acquaintances."

### Future of Instrumentation

Lee F. Maybach, instrument engineer for the big Crown Z mill at Camas, was moderator and he predicted in the future that instrumentation must advance along

with "the growing demand of industry for processes which it wishes to control" and also for adequate controls for "those processes with which industry is having difficulty."

Today we have reached a point, he said, where "we can measure almost anything if we want to spend the money to do it, and we have better control than when it is done by hand."

However, all the new devices do not relieve the operator on duty of responsibility and, while there may be instances where he is released for other duties, he must still intelligently oversee the operation.

### Consistency Control by Photo-Cell

Herbert T. Peterson, instrument engineer, Longview mills, Weyerhaeuser Timber Co., gave a talk extemporaneously on the subject of consistency control—a problem that has never yet been entirely solved. He described briefly the drawbacks and advantages of consistency control by using a photo-electric cell in the pulp mill, ahead of screens, on both bleached and unbleached pulp, as it is being done at Longview. An excellent control has been attained, but he conceded that his device "has the limitations of all consistency controls."

The Camas instrument department developed a diaphragm needle valve for their new sulfur level control. Both Mr. Maybach and Mr. Williams answered many questions about it, and their replies generally were that it is working well under all sorts of conditions. This paper is published on page 80.

### Electronic Applications

Mr. White touched on many applications for electronic devices in the indus-

## JOINT LONGVIEW MEETING

Indicating new trends in the Far West, paper converting is going to be the subject for a joint meeting of the Pacific Coast superintendents division and Pacific Coast technical section—their first in the winter—on Tuesday, Dec. 6 in Longview, Wash. There will be no Seattle Superintendents convention this year.

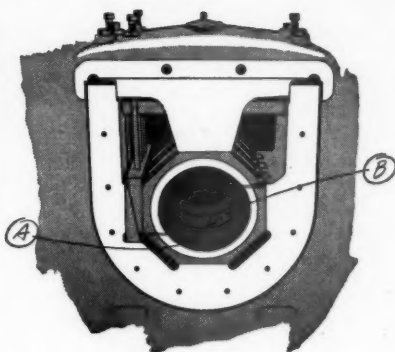
At Longview, there will be mill tours in the forenoon, in a jointly-sponsored symposium on paper converting beginning at 2 p.m. at the Elks' Hall, and social hour and dinner at the Monticello Hotel. Tentative subjects are:

Conditioning of paper after it is made at the Everett Pulp & Paper Co. soda book paper mill; materials handling at Longview Fibre Co.; quality control at the Crown Z mill at Camas; cost reductions in the Camas converting plant, and operations of a corrugating plant. Carl Fahlstrom, assistant manager, Longview Fibre Co., is moderator.

At 1 p.m. at Elks Hall, the superintendents will meet to elect officers. Final decision on a spring three-way joint meeting with the new Western Canada Technical branch will be made during the Longview meeting.



### Case 1145—Cutting Lube Cost in General Equipment



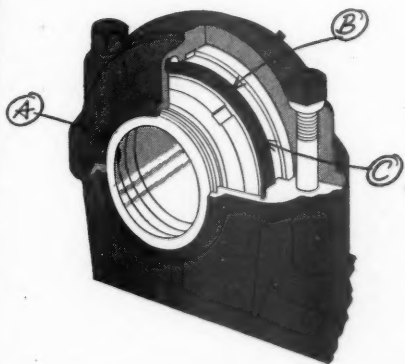
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try. He discussed uses of photoelectric cells, mentioned the photoelectric counter, web break detector, and modifications for checking smoke density and turbidity of liquid, the spectrophotometer for checking color, the photoelectric pyrometer for temperatures, a leak detector for vapors or gases which is easily applicable to chlorine, a moisture content detector, and a metal detecting device used by Army engineers in checking insides of logs.

He discussed the Thyatron, Ignitron and the amplistat and other devices developed for amplifying the signals in these electronic devices, thereby to go a step farther and actually control a process without help of an operator. This led to discussion of the amplidynes and electronic amplifiers in new sectional machine drives, for cutting paper, etc.

"We now have tools and devices to enable us to do almost any type of automatic control desired, working from the weakest of signals up to the point of controlling the largest of machines," said Mr. White. "The limitation is not whether we can do the job, but if it is economical to do it. If better instrumentation and control will improve your product, prevent waste or increase output, it can be justified."

#### pH Control at Machine

Mr. Hall of Camas, said satisfactory pH control at the paper machine by regulating alum flow means improved quality and uniformity, improved production and resultant economies. He said alum is added at the stuff box because it is the most practical close point ahead of the fan pump, and that pH is measured following the fan pump "since the pump gives good mixing."

"The pH meters' glass and calomel electrodes and a compensating resistance thermometer are encased in a container through which stock is passed. The millivolt output of the pH meter is fed to the recorder controller unit, which adjusts the alum flow to give the set pH. Controller's operation of the alum (Saunders type) valve can be adjusted within the instrument. The response of controller is set only as fast as will be allowed by the worst machine conditions."

Because of addition of Bird Dirtec units, the point of alum addition was changed to the Dirtec loop, and it was then found impossible to prevent cycling of the pH following the fan pump. The time lag from stuff box had become much greater. Changing the point of alum addition back to its former position resulted in acceptable control.

#### Control of Chlorine

Mr. Shera discussed handling and control of chlorine gas, a matter to which mill men give insufficient care or lack sufficient knowledge, according to Mr. Maybach. Chlorine handling systems will operate without trouble for years if they are kept dry, said Mr. Shera. No pipe lines or tank car hook-up connections should ever be left open to the atmosphere as the chlorine contained therein will rapidly draw in moisture from the air and combine to form

corrosive chlorine acids. He mentioned the value of a well-designed and adequate compressed air drying system which would be inter-tied with the chlorine handling system to clear it of gas and keep it dry for inspections and repairs.

The many important items of equipment entering into the average pulp mill chlorine handling system were described by Mr. Shera, and he stressed the importance of design, installation and maintenance of each. These were tank car flexible connections, pipe lines, valves,

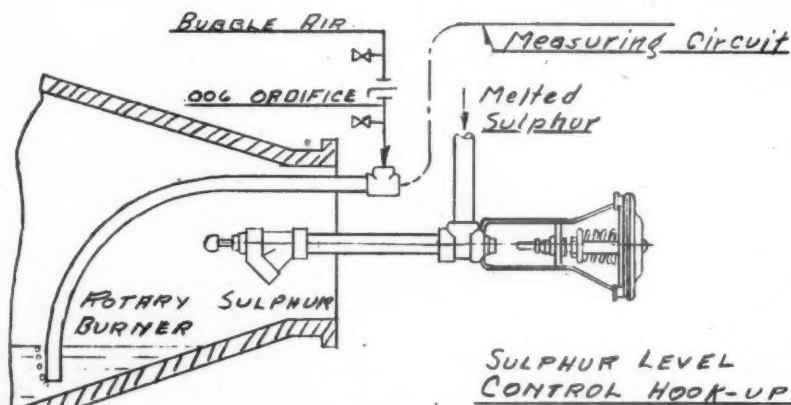
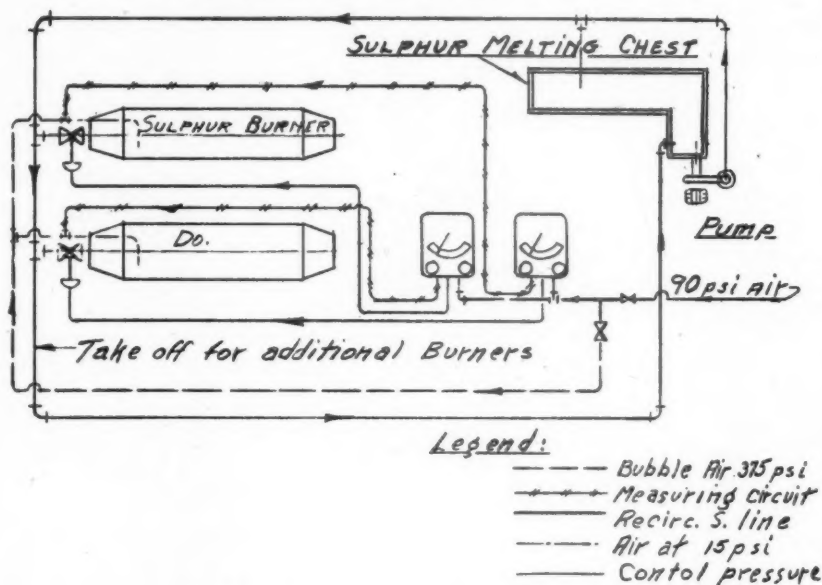
vaporizers, check valves, pressure safety heads, etc.

A comparison was made in the proper selection of equipment for batch or continuous application of chlorine with descriptions of various weighing or metering devices; indicating, recording and controlling instruments; alarm and safety devices.

Dr. Walter F. Holzer, Crown Zellerbach Corp., section chairman, presided, and Irwin Thieme, Soundview Pulp Co., was program chairman.

## AUTOMATIC CONTROL OF SULFUR LEVEL ROTARY BURNERS

By Forrest Williams,  
Shift Foreman, Sulfite Mill,  
Crown Zellerbach Corp., Camas, Wash.



FLOW CONTROL CHART (above) and SULFUR LEVEL CONTROL HOOK-UP for the new type of automatic control of sulfur level rotary burners which has been developed and put in use at a western mill.

The first step in acid making is the melting and burning of sulfur to form the gas sulfur dioxide ( $\text{SO}_2$ ). The rate of melted sulfur flow to the burners must be kept as uniform as possible. This is one of the most important factors in the acid making process. Many years ago attempts were made to install automatic controls, valves and warning systems on

the liquid sulfur level in the burners, or on the flow to the burners. These were all based on a float system and were failures, mainly because of the intense heat generated in the burners.

At Camas, the sulfur is melted in a rectangular tank equipped with steam coils. The melted sulfur is pumped through a steam jacketed circulating line

to five rotary burners. Any excess sulfur, over burner requirements, returns to the melting pot, thus helping to melt the incoming dry sulfur and maintaining a constant head on the flow to the burners. This flow into each burner from the circulating line was regulated by a standard plug cock valve.

This seems a simple operation. To improve it would appear unnecessary, but the problem of keeping the flow of melted sulfur uniform into each of five small rotary burners by hand control is a difficult one.

One solution to the problem would be the installation of one or two large burners. These would take the place of the five small burners. With the arrival of the new sulfite industry processes, using  $MgO$  and  $NH_4$  in the picture of future developments, a large expenditure at this time was considered unwise. Therefore, the automatic control plan was adopted.

We mentioned at the start that the rate of melted sulfur flow to the burners must

be kept as uniform as possible. The uniformity of the finished product, paper, depends a lot on how well this important part of the process is handled. Certainly it has an immediate effect on sulfite pulp, quality and costs.

When the sulfur level in any one burner changes, it changes the draft in all the other burners. This results in a variation of  $SO_2$  gas strength entering the Jenssen towers.

If the sulfur level in a burner drops, the burner temperature increases, the gas strength increases, and if allowed to go too high, unburned sulfur is pulled through the system, plugging coolers and Jenssen towers.

If the sulfur level in the burners raises, the burner temperature decreases, the gas strength goes down, and, as low gas strength means an excess of oxygen, the formation of  $SO_3$  increases. This results in the formation of sulfates in the Jenssen towers which would plug up the digester

heater tubes as well as lower the quality of the product.

#### How Sulfur Level Control Valve Operates

Our instrument department has developed a diaphragm-operated needle valve. This valve is attached to the sulfur inlet line to the burner by means of a union connection just under the hand-operated plug cock valve.

The plug cock valve left in place, serves as a shut-off valve if needed. Air pressure to the automatic valve is regulated by a bubble system of liquid level control in the burner. The sulfur level in the burners is held within a range of plus or minus  $\frac{1}{4}$ -inch from the point of adjustment. The operator can adjust the level in the burners individually by the control adjustment meter serving each burner.

Air at 90 lbs. per square inch pressure entering the system is reduced to 15 lbs. per square inch to the sulphur diaphragm valve and to 0.375 lbs. per square inch for the bubble liquid level control system.

A one-inch cast iron pipe extends through the front of the burner curving downward so that the end of the pipe is submerged in six inches of liquid sulfur. This six inches of liquid sulfur exerts a back pressure on the bubble air which in turn causes a flapper valve on the control meter to open or close, depending on whether the sulfur level goes down or up. For instance, as the diaphragm valve shuts off, the sulfur level in the burner will drop. A drop of less than  $\frac{1}{4}$ -inch will start to open the bubble air flapper valve which will increase the air pressure to the sulfur diaphragm valve. As it opens, increasing the flow of sulfur into the burner, the level in the burner will come up reversing the operation. The liquid level control range of  $\frac{1}{4}$ -inch or  $\frac{1}{2}$ -inch from wide open to complete shutting off of the sulfur diaphragm valve is so small that in actual operation the valve is never completely shut off or wide open. It is impossible to detect the variation in liquid sulfur in the burner by observation.

The diaphragm valve is made of steel and cast iron which withstands the heat satisfactorily. Iron bubble pipe has to be replaced after three months' service. A guard around yoke of valve protects rubber diaphragm from heat.

#### Conclusion

We are able to produce a more uniform, high test gas which reduces the percentage of  $SO_3$  formed and the unburned sulfur carry-over in the system. This is a direct saving in sulfur and an indirect improvement in quality and uniformity.

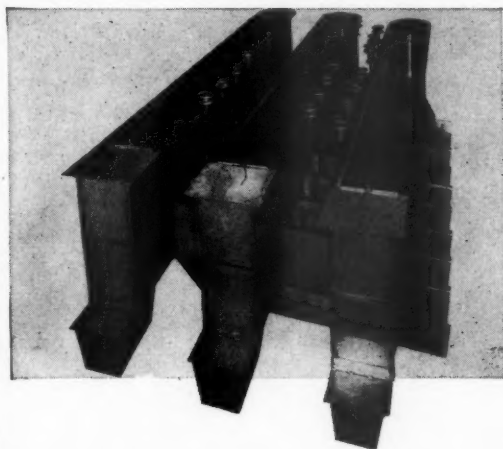
#### Joins Hercules in Portland

Charles H. Chapman, who has been with Hercules Powder Co. in Kalamazoo and Atlanta, has moved to Portland, Ore., with his wife and will be technical service representative out of the Portland plant under Milton Maguire, resident manager.

#### Raymond Alvord Dies

Raymond M. Alvord of San Francisco, commercial vice president of the General Electric Co.'s Pacific district from 1938 until 1947, died Oct. 24 after a short illness. He was 66 years old.

## INCREASE PRODUCTION CUT MAINTENANCE WITH B-H ENGINEERED EQUIPMENT



Brown-Hutchinson Fabricated Monel head box with polish on inside assures maximum wetability, stock cleanliness.

B-H engineered stock lines and head box installations throughout the industry have set records for long trouble-free life. Chiefly of Monel and stainless steels, they are corrosion free, free-flowing, lightweight for easy installation and portability. The satin-smooth inside surface of the pipe lines prevents slime formation and fiber buildup and the resultant clogging of lines. Maximum stock cleanliness is guaranteed. Typical stock lines have operated with no maintenance problems for more than 15 years! Write for booklet illustrating Brown-Hutchinson's cost-saving equipment for the pulp and paper industry.

- Alloy Pipe & Fittings
- Head Boxes
- Save-all Trays
- Steel Troughing
- Winder Shafts
- Pressure Vessels
- Tanks (steel, alloy, lead or rubber lined)



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# Personals

## PACIFIC COAST

"IT'S A GIRL" was the happy announcement from the home of Sidney M. Collier, assistant superintendent of Puget Sound Pulp & Timber Co. in Bellingham. The little lady, Christine Helen, arrived Oct. 20. She was greeted by two brothers, Edwin and James. Mother and daughter are doing nicely.

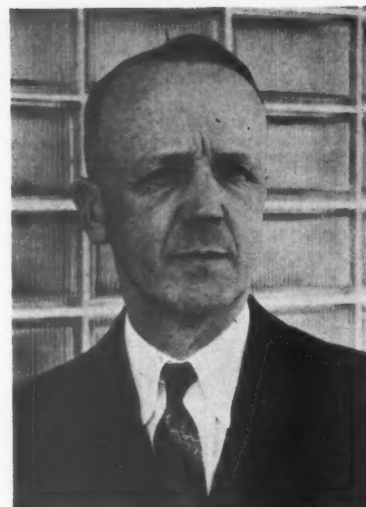
JACK McMULLEN, genial personnel manager of the Pacific Coast Paper Mills of Washington, now has an evenly divided household with the addition of little Justine Clare, born in Bellingham Oct. 21. The McMullens now have two boys and two girls.

## Jack Loomis on West Coast For Calco Chemical

Jack Loomis, widely known representative of Calco Chemical Division, American Cyanamid Co., New York City, made a trip to visit the Pacific Coast mills last month. He was accompanied by Bill Marshall of the Pacific Coast Supply Co., Portland, Ore., who met him in that city.

W. J. VAN DINTER, formerly digester cook, has become pulp mill tour foreman at Longview Fibre Co., Longview, Wash., replacing AUSTIN RUSSELL, who passed away in Aug., 1949. JULE TOWNSEND was in turn made digester cook.

R. P. WOLLENBERG, chief of engineering division, Longview Fibre Co., Longview, Wash., accompanied by Mrs. Wollenberg, visited several eastern points, including Washington, D. C., while on vacation during early part of November.



E. H. "TED" VICARY, who retired Nov. 1 as the Manager of Crown Zellerbach Corp.'s Central Engineering Division in Seattle, after 30 years with that company. He has been succeeded by W. J. LOWNDES. Mr. Vicary will continue as Consultant on Power to C-Z and other companies at 1017 Minor Ave., Seattle. He came west in 1916 with V. D. Simons to build the Port Alice, B. C., mill and did work on all mills on Olympic Peninsula. In 1933 he organized Central Engineering for Crown Z and Rayonier and this division completed projects totaling \$50,000,000. It engineered the Fernandina, Fla., mill and expansion in other mills. Rayonier, after World War II, organized its own engineering.

## Lowndes Chief Engineer For Crown Zellerbach

After 30 years' active service with the company, E. H. "Ted" Vicary, manager of the Central Engineering Division of Crown Zellerbach Corp., Seattle, retired Nov. 1, under the company's retirement plan. He was succeeded by his long-time assistant, W. J. Lowndes, with the title of chief engineer of the Central Engineering Division, with headquarters in Seattle.

Mr. Lowndes has been with the corporation since 1929 and with Central Engineering since 1933. Born and educated in eastern Canada, he entered the industry with the Abitibi company at its Iriquois Falls, Ont., mill. Prior to that he was with the Canadian government geodetic survey.

Mr. Vicary will continue on as a steam and electric power consultant to C-Z and other companies, at his residence, 1017 Minor Ave., Seattle. Since 1916, Mr. Vicary has been prominent in water power and mill developments in the West, directing engineering or helping to build many mills and many millions in mill expansion. Since 1933 he headed Central Engineering; for a long time for both Rayonier as well as C-Z.

Robert P. Hutchinson, University of Washington graduate with Crown Z since 1934, is the new assistant chief engineer under Mr. Lowndes.

WILLIAM HOSKIN, JR., son of William Hoskin, one of the original employees of the Puget Sound Pulp, was accidentally killed on Orcas Island when mistaken for an albino deer by another hunter.



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birch and aspen  
now come  
semi-chemical  
pulp

ABUNDANT and fast growing, these hardwoods are capable of vast increases over standard yields after sodium sulphite treatment followed by SPROUT-WALDRON refining.

Readily bleached and with high initial strengths, such pulps may be substituted for bisulphite in book and comparable grades.

Low power and high increments of clean, uncut fibers, offer inducement to serious consideration.

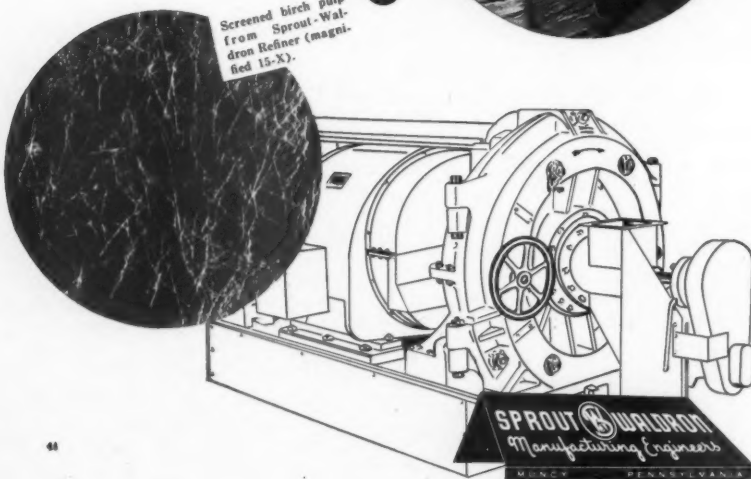
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Partially cooked  
birch chips from di-  
gester—(actual size).



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Screened birch pulp  
from Sprout-Wal-  
dron Refiner (magni-  
fied 15-X).





**ROBERT O. ANDERSON**, on the engineering staff of Puget Sound Pulp & Timber Co. and son of Mrs. Ossian Anderson and the late Ossian Anderson, pioneer in pulp mill development in the Northwest, recently married Miss Georgina Isbister, daughter of Mr. and Mrs. William Isbister of Victoria, B. C. The wedding was at the home of the groom's sister, Mrs. Neil Fowler, in Everett. Mr. Anderson was attended by his brother Eugene of Everett.

**JOHN A. REAM**, personnel supervisor at Crown Zellerbach Corp., West Linn, Oregon, was assigned Nov. 1 to the position of field representative for the retirement plan committee, in cooperation with the industrial relations department of San Francisco, Calif. His new operating headquarters are at the Portland C-Z offices. **D. S. CONEY**, former assistant personnel supervisor at West Linn division, was promoted to personnel supervisor, and **GEORGE LA HUSEN** became personnel supervisor.

**VIC LAU**, formerly assistant woodmill superintendent at the Crown Zellerbach mill at Camas, has taken over the position of woodmill superintendent at the C-Z mill in Port Angeles, due to ill health of George Davison, former superintendent, according to Malcolm J. Otis, resident manager at Port Angeles.

**MAX OBERDORFER**, president and general manager, St. Helens Pulp & Paper Co., St. Helens, Ore., and Mrs. Oberdorfer vacationed in November at Phoenix, Ariz., following a business tour in California. **MAX R. OBERDORFER**, vice president and assistant manager of the company, and his wife, accompanied Mr. and Mrs. Oberdorfer, Sr., in California.

**ARTHUR W. NEUBAUER** became supervisor—coating and sizing, in charge of non-fibrous additives, Crown Zellerbach Corp., Camas, Wash., Nov. 1. This is a new position at the mill, the duties previously shared by other supervisors. Until taking over in present capacity, Mr. Neubauer was service engineer of The Glidden Co., Soya Products Div., Chicago, Ill., having worked at the Camas plant prior to affiliating with Glidden.

**KEITH OLSEN**, tabulating machine room, Crown Zellerbach Corp., Camas, received \$50 award plus an original \$15 award for his suggestion of a simple template for wiring I.B.M. control panels.

**RALPH B. KNOTT**, controller of Fibreboard Products, Inc., San Francisco, was chairman of the program committee for the 18th annual meeting of the Controllers Institute of America, in that city, Sept. 25-28. **H. WATSON PADDOCK**, comptroller of the Union Bag & Paper Corp., New York, presided at a special conference of controllers from the paper products field, a feature of the convention.

**GEP BECKER**, pipe foreman at Longview Fibre Co., Longview, Wash., is recovering from a serious operation. During his two months absence, **FRED PLANT**, assistant pipe foreman, took over Mr. Becker's work.

**HARRY K. ROBERTS**, of Crown Zellerbach Headquarters staff, was featured speaker at the November meeting of the Portland Chapter of the National Association of Cost Accountants. Mr. Roberts' subject was "Developing a Manual of Procedure—A Case Study."

**EVELYN HAZELQUIST**, daughter of **S. E. HAZELQUIST**, technical director of Weyerhaeuser Timber Co., Pulp Division at Longview, was married Nov. 12 at Hoquiam, Wash., to **NORMAN JOHNSON** of that city.

**ALFRED A. HAMMEL** has been appointed in charge of carton maintenance at the Fibreboard Products Inc. mill at Stockton, Calif. Al was a machinist till 1934 when he began assuming supervisory roles. His hobby is collecting old clocks and fixing them up.

## Dan E. Charles Agency Represents Moore & White

The Dan E. Charles Agency, headed by Mrs. Dan E. Charles, of 1331 3rd Ave., Seattle, Wash., has been appointed to represent The Moore & White Company, of Philadelphia, manufacturers of paper-making machinery, according to advices received by this magazine from Richard U. Temple, sales manager of the Philadelphia firm.

Mr. Temple, who made his first visit to many Coast mills in September, expects to make a return visit in early 1950.

**AUSTIN W. RUSSELL**, pulp mill tour foreman, Longview Fibre Co., Longview, Wash., died of illness in August. **W. J. VAN DINTER**, formerly digester cook, filled the resultant pulp mill foreman vacancy.



Based upon your specifications, **DRAPER FELTS** are designed and made to secure a correct balance between the properties needed for your particular conditions.

*The*  
**DRAPER**  
*Felt*

## DRAPER BROTHERS COMPANY

*Woolen Manufacturers Since 1856*

**CANTON, MASSACHUSETTS**

*RALPH E. BRIGGS, Sales Manager*

● BRADFORD WEST, Pittsfield, Mass. ● WILLIAM N. CONNOR, Jr., Canton, Mass. ● L. H. BREYFOGLE, Kalamazoo, Mich. ●  
● WALTER A. SALMONSON, 2514 Northeast 59th Ave., Portland, Oregon ● L. L. GRIFFITHS, Jr., Kalamazoo, Mich. ●  
● HAROLD H. FISH, Syracuse, N. Y. ●

## Personals

### MIDDLE WEST

**WILLIAM R. JOHNSON** of Manhasset, Long Island, has been appointed chief industrial engineer of Gardner Board and Carton Co., of Middletown, O. He succeeds George I. Brown, who is being loaned by Gardner to the Folding Paper Box Assn. of America. Prior to coming to Middletown, Mr. Johnson was manager of the New York Branch of the American Bosch Corp. He is a graduate of the Polytechnical Institute of Brooklyn. Mr. Brown will serve as a consultant to the Folding Paper Box Assn., with headquarters in Chicago.

**K. V. WHITE**, manager of the accounting department of Fox River Paper Corp., Appleton, Wis., has taken on additional duties as office manager of the company, according to David E. Oberweiser, vice president and treasurer.

**"HUTCH" McCORMACK**, for many years in the engineering department of Spruce Falls Power & Paper Co. at Kapuskasing, Ont., has been transferred to the Kimberly-Clark offices in Neenah, Wis.

**NATHAN D. BLOOMER**, brother of Victor Bloomer, who was just recently elected president of Appleton Machine Co., Appleton, Wis., died suddenly Nov. 3. Nathan was 46 and a partner in John F. Bloomer Construction Co. His brother had become Appleton Machine president after the similar recent sudden death of Henry Madsen on an Appleton golf course.



**H. O. BARNEY** (left) whose appointment as Assistant Purchasing Agent of Fox River Paper Corp., Appleton, Wis., is announced by David E. Oberweiser, Vice Pres. and Treasurer. Mr. Barney continues as Manager of Cost Dept.



**WILLIAM R. JOHNSON** (right), appointed Chief Industrial Engineer for Gardner Board and Carton Co., Middletown, O.



## ...WITH MORDEN

Each year sees the ever widening and increasing use of Morden "Stock-Makers".

Each year brings a substantial volume of repeat orders.

Each year further proves the ability of this one versatile machine for the treatment of a wide range of pulps and papers.

Controlled treatment, varying from light brushing for soft tissue up to the extremes of hydration for glassine, is obtained simply by varying the power applied per ton of stock.

A balanced beating or refining treatment is obtained by varying the amount of internal recirculation or blending of the stock as it continuously passes through the machine.

You are reaching the period where grade changes are becoming more frequent and where further improvement in quality and decrease in production costs really begin to count.

May we suggest that you have Morden bring you up-to-date on what the "Stock-Maker" is doing and can do to help you meet present day requirements?

**MORDEN MACHINES COMPANY**  
PACIFIC BUILDING • PORTLAND 4, OREGON

*in Canada*

The William Kennedy & Sons, Ltd. Owen Sound, Ontario

*in England*

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**HERBERT T. RANDALL**, vice president and consulting engineer, Champion Paper & Fibre Co., Hamilton, O., and his wife escaped in a dinghy from their yacht when fire broke out at night and destroyed it while they were anchored near Drummond, Mich.

**M. S. FOGARTY**, chief engineer, Sutherland Paper Co., Kalamazoo, Mich., is a Worcester, Mass., boy and a graduate of the famed Worcester Polytech. Consequently he enjoyed himself a great deal in the Boston and Worcester area early in November where he attended the Engineers' meetings and the field trips which wound up the meeting. Among the many old friends and classmates was **WILLIAM R. MOORE**, vice president of the Norton Company.

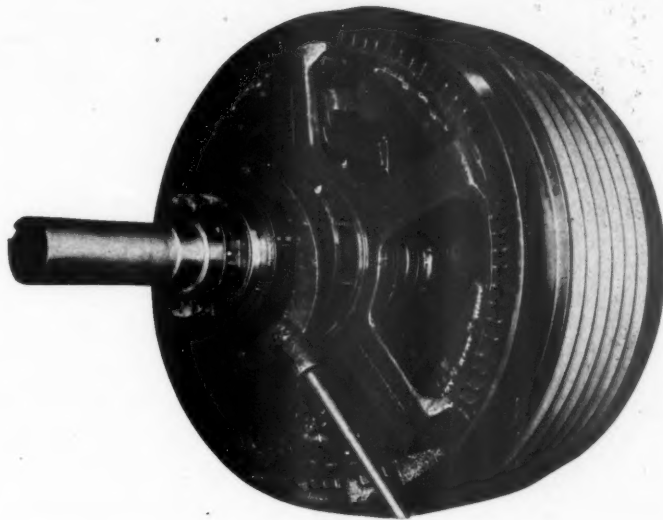
**HENRY F. FREDLUND**, traffic manager of Nekoosa-Edwards Paper Co., was elected president of the Wisconsin Valley Traffic Club Oct. 19 at Wausau, Wis. Mr. Fredlund succeeded S. F. Philpot, division superintendent of the Milwaukee Road. A veteran of 24 years with Nekoosa-Edwards, Henry Fredlund started as a rate clerk in 1925 and was made traffic head in 1935. Because of extensive study of traffic law he was admitted to practice before the Interstate Commerce Commission in 1936.

**DON KNIGHT** of the sales div. of Bulkley, Dunton Pulp Co., Inc., with his offices in Kalamazoo, became the father, Sept. 22, of a baby girl named Melinda, the Knights' first child.

**HENRY S. PIERSON** has been named manager of Dow Chemical Co.'s Chicago sales office.

**MRS. T. M. GILBERT, SR.**, of Neenah, Wis., who died Sept. 11 left personal property valued at \$250,000 and real estate \$20,000. Her stock in the Gilbert Paper Co. was divided as follows: one-half in tenths to son, Theodore, his wife, Ruth, and their children, Charles, Theodore, Jr., and Albert Gilbert. The other half to George Gilbert, the other son, and his children, William and Mary Jane Schmerein.

## *The Pulley with the Pull that Pays---*



Horton Variable Speed Pulleys Represent a Remarkable Advance in Power Transmission

*Pacific Coast Supply Company*  
PORTLAND, OREGON • SAN FRANCISCO, CALIFORNIA



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**FOR ECONOMY  
SERVICE — RELIABILITY**

**T**HESE CRANES are typical of equipment Ederer custom-builds to the job requirements of the pulp and paper industry—that have proved their economy and reliability in day-to-day operation—whether a 50-ton stand-by crane or a specially designed log canting crane. An Ederer engineer will be glad to show you the economy of custom-building to your specifications.

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## 5 New **Kalamazoo** Glazed Tile Tanks

Included in the  
**GILBERT \$1,000,000**  
Modernization

Gilbert selected Kalamazoo Tile for their stock chests as they are long lasting, easy to keep clean and require no maintenance. The ideal material for stock chests or tanks.

**Kalamazoo**  
**TANK and SILO CO.—Kalamazoo (16) Mich.**

ANOTHER POSITIVE PROOF OF

## **HANCHETT LEADERSHIP**

This  
**MAMMOTH**

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TRAVELING  
WHEEL

### **KNIFE GRINDER**

is operating at the new Camas plant of  
**CROWN ZELLERBACH CORPORATION**

Write Hanchett today. Find out why this great mill has used Hanchett Grinders for many years.



**HANCHETT MANUFACTURING CO.**

World's Largest Manufacturers of Saw & Knife-fitting Machinery

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West Coast Factory, PORTLAND, OREGON

# Personals

## NORTHEAST

### Supts. of Little Mills Are Top Men in Division

Superintendents of three of the smallest mills in New England were honored by being re-elected recently to the top jobs in the Connecticut Valley Superintendents division:

Andrew H. Gilmour, superintendent of the ten-ton-a-day shoe board mill of C. H. Norton Co., North Westchester, Conn., continues as chairman.

Tom H. Flaherty, who runs Case & Risley's 5-ton pressboard mill at Oneco, Conn., continues as first vice chairman.

Alfred L. Montagna, who operates the 8-ton de luxe and watermark paper mill of Southworth Co., at West Springfield, Mass., remains as second vice chairman.

R. E. Kilty of Staley Mfg. Co., is secretary-treasurer.

J. D. MALCOLMSON, technical director, Robert Gair Co., New York, has been elected to a three-year term as a director of the Packaging Institute, Inc.

EDWARD C. MEAGHER, treasurer, Texas Gulf Sulphur Co., New York, recently resumed the duties of president of the United Engineering Trustees, Inc.

JOHN K. CONANT has been named vice-president, Regent Pulp & Chemical Co., Inc., New York. Mr. Conant is a resident of Wilmington, Del., and will continue his residence there. For the past nine years he was assistant director of purchases of the American Viscose Corp.

HARRY G. SPECHT, vice president and general manager of Eastwood-Nealley Corp., Belleville, N. J., was a featured speaker at the November meeting of the New England section of the technical association, held at Toto's, Smiths Ferry, near Holyoke, Mass. Also featured was Peter Sinclair, president of The Sinclair Company, Holyoke, who—like Mr. Specht—returned recently from abroad.

JOSEPH FOWLER has been appointed sales representative for the Gould Paper Co., Lyons Falls, N. Y., according to E. J. Sullivan, eastern sales manager. Mr. Fowler will make headquarters in New York City. He previously was with Hollingsworth & Whitney, and St. Maurice Valley Paper Co.



## SEMITLE TANKS ARE VERSATILE

Semtile tanks have no limitations as to shape or size, provided a vertical type unit is used.

They can be erected in almost any location and in extremely confined space where it would not be possible to fabricate other types.

They withstand heavy bearing loads, as this results in a compression on the wall which aids in

resisting temperature and shrinking stresses.

Other Semtile features to remember—

No through joints in a Semtile tank, either horizontally or vertically.

Semtile salt-glazed tile presents a smooth flowing, easy to clean surface.



**Stebbins Engineering Corporation**

TEXTILE TOWER

SEATTLE 1, WASHINGTON

LELAND BARTLETT MOSS, 46, manager of the Industrial Relations Department of Robert Gair Company, Inc., New York, was killed in the airliner catastrophe at Washington, D. C., Nov. 1. He joined the company in 1929. Born at Mount Kisco, N. Y., and a graduate of Cornell, Mr. Moss is survived by his widow and two children.

WARD HARRISON has been elected vice president in charge of production of Riegel Paper Co., New York. Mr. Harrison will continue to direct production at all Riegel plants, which are in Milford, Warren Glen, Hughesville and Riegelsville, N. J., and to be responsible for activities on the company's timberlands at Acme, N. C. Mr. Harrison is a graduate of Iowa State College, Ames, Ia., and holds a Ph. D. degree from the Institute of Paper Chemistry, Appleton, Wis. He was formerly with Ecusta Paper Corporation, Pisgah Forest, N. C., and Crown Zellerbach at Camas, Wash.

HAROLD P. JONES, sales representative in New England for Heppenstall Co., has retired. George H. Wurster has succeeded him.

PULP AND PAPER NAMES in the Conference on Maine Resources at University of Maine Nov. 4: John B. Calkin, director of the Department of Industrial Cooperation at the University; Dr. Frederic H. Frost, S. D. Warren Company; Prof. Lyle C. Jenness; Russell L. Winget, executive secretary, National Council for Stream Improvement; David W. Allen, Disston Co.; Dr. Harry W. Gehm, National Council; Edward L. Lamb, Oxford Paper Co.; Thomas G. Mangan, International Paper Co.; and Clifford Patch, Eastern Corp.

F. J. McCOURT, former technical control superintendent, has been appointed sulfite superintendent of the Palmer (Corinth), N. Y. mill of International Paper Co., succeeding V. P. Edwardes, who entered consulting work.

S. K. BRADLEY has been appointed assistant director of multiwall bag sales for Union Bag & Paper Corp., New York, it is announced by Leonard J. Doyle, vice president. J. J. Patterson succeeds Mr. Bradley as eastern district sales manager for Multiwall Bags.

## ROBERT AND COMPANY ASSOCIATES

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*Consulting and Design Engineers to the  
PAPER AND CHEMICAL INDUSTRIES*

HAROLD R. MURDOCK, *Chemical Engineer*

PROCESS STUDIES • DESIGN • POWER PLANTS • INDUSTRIAL WASTE DISPOSAL

## Big G. E. Plant Completes Expansion

An expansion and modernization program costing \$2,000,000 has been completed at General Electric's transformer manufacturing plant at Oakland, Calif., making it the largest self-contained transformer manufacturing operation in the West.

LINK-BELT CO. announces that its modern new manufacturing plant on a 10-acre plot at 3203 South Wayside, Houston, Texas, has opened. Allen Craig is manager.

## Link-Belt Fluid Drives

Link-Belt Fluid Drives are featured in a new 28-page catalog and engineering data book No. 2385 released by Link-Belt Co., 307 North Michigan Ave., Chicago 1.

This book, in effect, is a progress report on the Link-Belt Electrofluid Drive, "ED" type, which the company announced three years ago as a compact, packaged power transmission unit providing for smooth, cushioned starting of machines, smooth running under varying conditions of loading, and automatic overload protection.

## Graham's 94th Year Expansion Plan

Construction is now in progress at the main office of Graham Paper Co. in St. Louis, enlarging the warehouse and office facilities. The estimated \$125,000 new addition will facilitate the assembly of shipments to out-of-town branches and a mezzanine will be used for an employees' cafeteria and the filing department and sample rooms.

Recent expansion has also taken place in Chicago, Knoxville, and Jackson, Miss. John Wilson's Chicago division has recently moved to larger quarters at 405 W. Lake Ave.

## Mill Honors Teachers

Crown Zellerbach Corp., Camas, Wash., honored public school administrators and teachers of Camas and Washougal with a banquet Oct. 20. F. A. Drumb, CZ resident manager, welcomed the group of 200 and A. G. Natwick, assistant resident manager; V. C. Gault, supervisor, industrial and community relations, and G. A. Anderson, wood technologist, participated.

## JUNIOR EXECUTIVE

Forestry graduate, 36, with successful 15-year record in woods management, production, and preparation will give unselfishly of time and ability for opportunity to assist top executive in paper manufacturing and general administrative duties. Reply Box P&P-56, Pulp & Paper, 71 Columbia Street, Seattle 4, Wash.

## FOR SALE

Hydropulper for sale—ten foot Dilts Type.  
Lockport Cotton Batting Co.  
Lockport, New York

WANTED — CONVERTING FOREMAN familiar all phases converting toilet tissue, towels, napkins, Northern New York Mill. Full resume please. Reply Box P&P 58, PULP & PAPER, 71 Columbia Street, Seattle 4, Wash.

## SALESMAN WANTED

Resident salesman wanted to represent large eastern mill manufacturing comprehensive line of toilet tissue, paper napkins, paper towels and many other specialty items that are sold in volume to paper jobbers, wholesale grocers and chain stores. Write giving all details regarding experience, salary requirements and other information that will be helpful in determining qualifications. Territories open in Pennsylvania, Indiana, Michigan, Illinois, Wisconsin, Iowa, Missouri and Kentucky. Reply Box P&P 59, PULP & PAPER, 71 Columbia St., Seattle 4, Wash.

FOR SALE: One (1) Beloit High Speed Double Drum Winder, consisting of two (2) 18" diameter x 156" face cast iron grooved winder drums, etc. Reply Box P&P 57, PULP & PAPER, 71 Columbia Street, Seattle 4, Wash.

# STOP!



## LOOK NO FURTHER...

The answer to your question of what pumps to use in your pulp and paper mill is here, in Ingersoll-Rand's bulletin No. 7022. It covers both horizontal and vertical pumps for all your needs. Capacities range from 5 to 75,000 GPM and heads to 3100 ft.

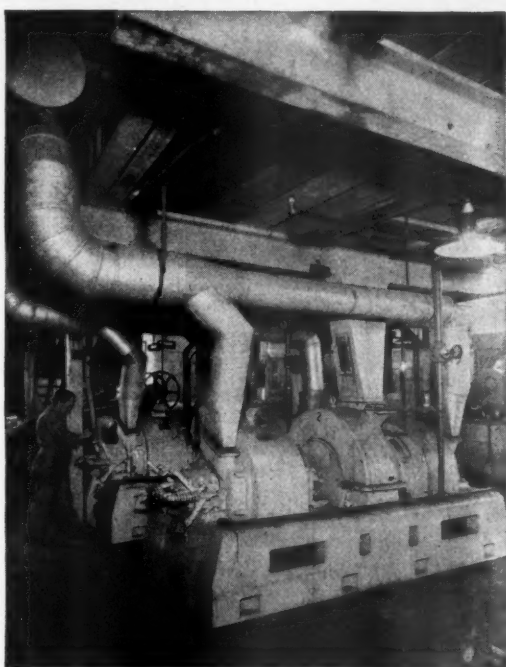
Send for it today or call an I-R pump engineer—both can help you!

Ingersoll-Rand Company, Cameron Pump Division, 11 Broadway, New York 4, N. Y.

**Ingersoll-Rand**  
106-10 11 BROADWAY, NEW YORK 4, N. Y.

**AIR TOOLS** **ROCK DRILLS**  
**COMPRESSORS** • **TURBO BLOWERS**  
**CENTRIFUGAL PUMPS** • **CONDENSERS**  
**OIL AND GAS ENGINES**





## *Bauer* PULPERS

USED FOR REFINING  
STOCK AT NEW WALL-BOARD MILL

THE PHOTO shows two Bauer 150-hp Pulpers which do the final refining of stock for wall-board at a new mill in the Northwest.

Bauer Pulpers are widely used in pulp, paper, and board mills throughout the world. The double revolving discs produce long, pliable, free fibers. An idea of the versatility of these machines can be gained from the following list of materials refined for a large variety of products:

- Raw, steamed, and cooked chips from soft and hard woods for insulating board, wall-board, hard board, corrugated board, plastics, roofing felt.
- Groundwood rejects for newsprint, special wrappers, and boards.
- Sulphite and soda pulps for tissue, book, and other grades of paper.
- Kraft knitter and screen rejects for inclusion in kraft board and kraft bag papers.
- Sulphite knitter and screen rejects for newsprint, boards, and specialties.
- Waste papers of all kinds (including wet-strength) for paper board, auto panel board, wall-board filler, etc.
- Bagasse, licorice root, bamboo, straw, and many agricultural residues for insulating and building boards, special papers, paper boards, felt, etc.

Complete mechanical and processing information will be gladly furnished upon request. Anyone with special pulping and refining problems is invited to take advantage of our laboratory and testing facilities.

**THE BAUER BROS. CO.**  
SPRINGFIELD, OHIO

LOAN CO



Bill is a good worker. He made big wages while paper was in short supply. His mill is down now. Bill is laid off. Poor old Bill!

## POOR OLD BILL and LUCKY JOE



Joe is a good worker, too. He makes steady wages all year round. Never heard of a buyer's market. He doesn't have to worry. Lucky Joe!

There are too many "poor old Bills" among employees of high-cost mills—and slow drying makes high costs. Too much water remains in the sheets after they leave the presses. Too much heat is needed at the drier rolls. When machines go slow costs go up—and mills go down.

There are plenty of "Lucky Joes", too. They work at low-cost mills where presses are equipped with Hamilton Felts. There is not much water left in the sheets by the time they reach the driers. Little heat and little time needed to finish them. Machines go fast—costs go down and pay-rolls go steady.

**SHULER & BENNINGHOFFEN**

HAMILTON, OHIO

Miami Woolen Mills, Established 1858

**Hamilton**  
*Felts*

# how to get more profits out of your mill



Is your mill "falling behind", due to obsolete equipment, inefficient flow of materials, outmoded storage and handling methods, etc.? The longer these conditions exist, the more you limit your future profits, particularly in the face of today's mounting competition.

Companies confronted with these crucial problems are finding profitable solutions through EBASCO.

## EBASCO OFFERS YOU ANY OR ALL OF THE FOLLOWING:

- Complete survey of your plant needs by an experienced team of engineers, constructors and business consultants.
- Recommendations for overall plant modernization, or improvement of any phase of operation.
- Complete design and construction services.

## Let's Discuss Your Problems

EBASCO is ready to consult with you and prepare a modernization program to fit your individual requirements. Such programs are designed to pay for themselves in a reasonable time. There is no obligation for preliminary discussions. Why not plan today—with EBASCO'S help—for assured profits tomorrow.

## EBASCO SERVICES INCORPORATED

Two Rector Street, New York 6, N. Y.

Ebasco Teamwork gets things done anywhere in the world.



Appraisal • Budget • Business Studies • Consulting Engineering  
Design & Construction • Financial • Industrial Relations  
Inspection & Expediting • Insurance & Pensions  
Purchasing • Rates & Pricing • Research • Sales & Marketing  
Systems & Methods • Taxes • Traffic

## Personals

### CANADA

**HAROLD S. FOLEY**, president of Powell River Co., was expected back at his Vancouver, B. C., office about mid-December after making a tour of Australian pulp and paper mills. He was accompanied by **ROBERT M. FOWLER**, president of the Canadian Pulp and Paper Association, Montreal, part of the way.

**K. W. MATHESON**, formerly in charge of the legal department, Fraser Companies, Edmundston, N. B., and subsidiaries, has been appointed assistant to the general manager.

**DONALD WATEROUS**, president of Waterous, Ltd., Brantford, Ont., manufacturers of pulp and paper mill machinery, toured his company's branches at Edmonton and Prince George and the Heaps-Waterous plant at New Westminster, B. C., in November.

**F. S. MacDONALD**, manager of Homad Services, Ltd., Montreal, and vice president of the G. D. Jenssen Co., Watertown, N.Y., was representing the latter company at the annual Fall meeting of Engineers at Hotel Statler, Boston.

**GEORGE M. BRAIN** has been appointed general sales manager, Provincial Paper Co., Toronto, according to announcement by General Manager A. P. JEWETT.

**C. W. E. LOCKE**, resident manager, Pacific Mills, Ltd., has returned with his wife to Ocean Falls, B. C., after an extensive tour of Europe. Mrs. Locke came originally from Switzerland.

### John C. Monty, CIP Mill Manager, Dies

John C. Monty, mill manager of the Canadian International Paper Co. at Gatineau Mills, Inc., died Oct. 19 at his home, 121 Poplar Street, Gatineau. He was 62 and had been ill for the past year.

Mr. Monty went into the industry in 1903 with the Carthage Sulphite Pulp Co., Carthage, N. Y. He worked with various companies, including Great Northern Paper Co., East Millinocket, Me.

During World War I he served in France as infantry captain. He returned to Great Northern and in 1919 operated the first machine to make newsprint at 1,000 feet per minute. In 1927 he joined International in New York and was sent to Gatineau to assist in founding of Canadian International. In 1928 and 1929 he returned to New York office and in 1930 was transferred to the Dalhousie, N. B., mill as general superintendent until 1937, when he was transferred to Gatineau as mill manager.

He was a charter member of the National Federation of Music Associations of Canada and played several instruments. Surviving is his wife, the former Lois Thivierge.

**J. A. YOUNG**, vice president; **R. R. EDWARDS**, assistant resident manager, and **E. W. CAMPBELL**, personnel director, Pacific Mills, Ltd., played a prominent part in an entertainment given at Ocean Falls by the company for about 50 university students prior to their return for the fall term.

**DAVID BOYD**, formerly works manager of the general engineering division, John Inglis Co., Toronto, has been appointed manager of manufacturing for English Electric Co. of Canada, St. Catharines, Ont.

## CAMAS ELECTRICAL STORY

By David C. Fulton

(Continued from page 52)

1500 and 1250 H.P. chipper and barker pump motors are supplied from the 7200-volt feeder. Metal-clad control center equipment is used throughout and separate rooms within the mill structure are provided for the high voltage and main power center control equipment.

### Hydraulic Barker

Electrical equipment used with the hydraulic barker includes a Westinghouse multi-generator motor generator set with Rototrol speed regulation, which provides substantially stepless speed control of the barker operations. Standardization of unit equipment ratings has been accomplished in order to minimize the spare parts inventory and simplify maintenance work.

### Motors

The 1500 H.P. 80% power factor synchronous chipper motor is capable of providing sufficient reactive KVA to maintain a leading average power factor in the wood mill load, while the 1250 H.P. motor is of the squirrel cage induction type and has pressure lubricated bearings. Auxiliary drive motors are of the to-

tally enclosed fan-cooled type in order to provide maximum protection from both moisture and mechanical injury. Direct current motor generators sets which supply field excitation to the synchronous motors are located in a separate room with the high voltage control equipment.

### Crane Control

Alternating current Westinghouse reactor type crane control allows the crane loads to be spotted accurately and high or low speed operation is possible with light, heavy, or varying loads. Safety to loading personnel is assured by precision handling and easy operation.

### Lighting

Industrial reflector type incandescent lighting is installed throughout the new wood mill in such a manner that both working areas and equipment are clearly visible at all times. Particular attention has been given to critical points such as the chipper bearings, in order to allow for ready inspection for maintenance purposes.

## PROGRESS IN FELTS



OVER THE ENTIRE SPAN of modern paper manufacture, paper machine felts have been made in the same general way—same general way, that is, until Orr chemically-treated felts appeared.

Development of ORR-CHEM (treated) felts is now gradually revolutionizing the art of felt manufacture—not the actual weaving of the felts, but the further processing of them after weaving to insure better service on the paper machine than would otherwise be possible.

Now, a fully-equipped laboratory has been installed in which to study and test felts—for stretch, porosity, fatigue resistance, etc.

Research, ever seeking the new to replace or improve the old.

ORR-CHEM  
(Treated) FELTS

STANDARD  
(Untreated) FELTS

*All Machine Requirements*

**THE ORR FELT & BLANKET CO.**  
PIQUA, OHIO

# ORR-CHEM

December 1949

## Bumper Crop—for you as well as the farmer

Corn plays two big roles in the paper industry.

From corn come materials that help you make better paper more efficiently and economically—such materials as GLOBE\* Starch for the beaters and for enzyme conversion; AMIJEL\* for the beaters; CORAGUM\* for corrugating; and LAM-O-DEX\* for laminating.

And then corn is a major source of that 25-billion-dollar farm income that buys huge tonnages of every paper product.

Better paper... better sales—corn helps you two ways.

Consult our Technical Sales Department—without obligation—for information on the profitable use of these products.

### CORN PRODUCTS SALES COMPANY

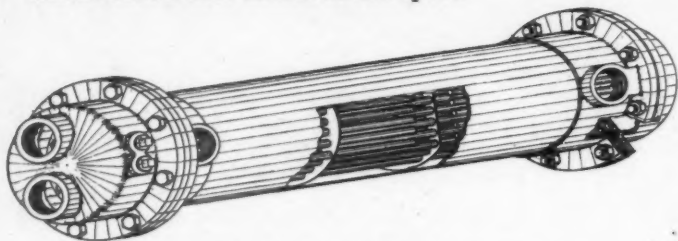
17 Battery Place • New York 4, N. Y.

\*GLOBE, AMIJEL, CORAGUM and LAM-O-DEX are registered trade-marks of Corn Products Refining Company, New York, N. Y.





**HEAT EXCHANGERS** for all purposes . . . In an attempt to show some of the many uses of heat exchangers an entirely different type manufactured by the "Alaskan Copper Works" will be shown each month in this space.



**For Closed Type Cooling Systems on  
Stationary and Marine Gas & Diesel Engines • Oil Coolers  
Water Coolers • Low Pressure**

**Noteworthy Features:**

**HEAVY CONSTRUCTION**

- |   |   |
|---|---|
| (1) Removable, Special Alloy Electrolysis Eliminator Plugs                                      | (4) Removable tube bundle.  |
| (2) Multi-pass, giving controlled velocities commensurate with heat transfer and pressure drop. | (5) Cross flow with controlled velocity and pressure drop by calculated baffle spacing. |
| (3) Full floating head, giving complete freedom of movement of tubes and floating tube sheet.   | (6) Tube alloy selected to meet corrosion problem of cooling medium.                    |

**ALASKAN COPPER WORKS**

3609 E. MARGINAL WAY EL. 4494 SEATTLE, WASHINGTON

**New Barker Plant  
Starts Up at Shelton**

A new hydraulic log barker with whole log chipper plant at the Shelton, Wash., division of Rayonier Incorporated started operations Nov. 14. This is the third Rayonier mill to change over to hydraulic barking and whole log chipping.

Sumner Iron Works supplied a trunnion type high pressure (1,300 p.s.i.) barker and 154-in. disc chipper.

**Puget Pulp Builds  
Chemical Cleaning Plant**

Puget Sound Pulp & Timber Co.'s 360-ton unbleached sulfite market pulp mill of Bellingham, Wash., is constructing a two-stage \$1,250,000 chemical treatment plant to produce a whiter pulp and thereby "to broaden the present market" for its pulp. It is to be completed in April with a continuous chlorination stage and batch bleaching stage.

**FOR RE-SALE  
CAMACHINE REWINDERS AND  
TENSION CONTROL MILL ROLL  
STANDS**

*All Machines Are New*

- 1 42" type 10-6 rewriter
- 1 42" type 40-8 rewriter
- 1 26" type 24 2K rewriter
- 2 52" type 40-1DF rewinders
- 1 72" type 14 winder
- 6 42" to 62" type BTP Constant Tension Mill Roll Stands
- 1 42" type BT Constant Tension Mill Roll Stand
- 1 82" type CTR (double) Constant Tension Center Rewind Stand

*Subject to prior sales.*

**CAMERON MACHINE COMPANY**  
61 Poplar Street Brooklyn 2, N. Y.



NEW OFFICERS of the Miami Valley Supts. Div. recently elected, include (l. to r.) CHARLES MOORE, Maxwell Paper Co., Franklin, O., Secretary-Treasurer; KON MATCHUK, Maxwell Paper Co., Chairman; JOHN BURDSALL, Crystal Tissue Co., Middletown, O., First Vice Chairman; and EDWARD H. BINDLEY, Cheney Pulp and Paper Co., Franklin, O., Second Vice Chairman. At far right is ROBERT ENGLEHARDT who was presented with a life membership in the Supts. Assoc. by HAROLD LEIGHTON, Beckett Paper Co., Retiring Chairman.

**COMING INDUSTRY MEETINGS**

**National**

- Amer. Societies of Mechanical Engineers and for Advancement of Management—Auditorium, Cleveland, Ohio.....Jan. 16-19, 1950
- Allied Industries' Luncheon Club—Second Monday of month, 12 noon, Commodore Hotel, New York.

**Regional**

- Kalamazoo Valley Tech. Section—Kalamazoo .....Dec. 1
- Pacific Coast Joint Supt's.—Technical Meeting—Longview, Wash.....Dec. 6
- Ohio Tech. Section—Manchester Hotel, Middletown, O.....Dec. 8

- Lake States Tech. Section—Appleton .....Dec. 13
- Mich. Div. Supt's.—Harris Hotel, Kalamazoo .....Dec. 15
- Empire State Tech. Section—Holyoke, Mass. ....Dec. 16
- Canadian Pulp & Paper Ass'n.—Mount Royal Hotel, Montreal.....Jan. 25-27
- Joint U. S.—Canada Fundamental Research Conf.—Chateau Frontenac, Que.....May 29-30
- Canadian Tech. Section—Chateau Frontenac, Que.....May 31-June 2
- Paper Industry Salesmen—Midston House, New York City—Every Monday, 12 noon to 2 p.m.



Top: Al L. Sherwood, vice president, Sutherland Paper Co. (extreme right) greeted three Black-Clawson men who flew into Kalamazoo for the Superintendents' meeting, Oct. 20: left to right, Howard J. Bettner, Ralph M. Buechler, owner and pilot of a Stinson plane; and Sam T. Webber.

Next: Glen Sutton, Sutherland Paper Co.; O. W. Callaghan, Edgar Bros.; Richard Peters, secretary of Supts.

Next: Al C. Lutz, sales engineer, B. F. Goodrich Co.; Bill Hathaway, Supts. Chairman and R. M. Leighton, Technical Director, Stowe-Woodard Co., who moderated meeting.

Below: Bill Honey, Stowe-Woodard Co., Kalamazoo; Harrison Kindig, Chief Chemist, Mac Sim Bar Paper Co. and Charles Farrell, Raybestos-Manhattan.



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